Section 22
New Hampshire

Recreation and Natural Resources at Corps Flood Control Projects in New Hampshire

March 1994

US Army Corps of Engineers
New England Division

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Recreation and Natural Resources
at Corps Flood Control Projects in New Hampshire.

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The United States Army Corps of Engineers has six flood control projects in New Hampshire. Blackwater Dam, Franklin Falls Dam, Hopkinton-Everett Lakes, and Edward MacDowell Lake are located in the Merrimack River Basin. Surry Mountain Lake and Otter Brook Lake are located in the Connecticut River Basin. The report includes a description of the recreation and natural resources at the projects, on-going management activities, and a summary of the State of New Hampshire general management objectives regarding these resources.

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FOREWORD

The draft report was provided to the State of New Hampshire in March 1993. The information presented in this report is current through the date of the draft and does not reflect any changes in lease or license arrangements or management activities at the projects occurring in the last year.

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EXECUTIVE SUMMARY

The United States Army Corps of Engineers owns six flood control projects in New Hampshire in the Merrimack and Connecticut River Basins. These projects are:

- Blackwater Dam in Webster and Salisbury, New Hampshire
- Edward MacDowell Lake in, Peterborough, Hancock, Harrisville and Dublin, New Hampshire
- Franklin Falls Dam in Franklin, Hill, Sanborton, and New Hampton, New Hampshire
- Hopkinton-Everett Lakes in Hopkinton, Henniker, Weare, and Dunbarton, New Hampshire
- Otter Brook Lake in Keene and Roxbury, New Hampshire
- Surry Mountain Lake in Surry, New Hampshire

Blackwater Dam, Edward MacDowell Dam, Franklin Falls Dam, Hopkinton-Everett Lakes, and Surry Mountain Lake were approved for construction by the 75th Congress as part of the general comprehensive plan for flood control under the Flood Control Act of 1938. Otter Brook was later approved by the 83rd Congress, under the Flood Control Act of 1954, as an Amendment of the Flood Control Act of 1936. The primary purpose of these projects as stated in House Document Nos. 689 and 455, 75th Congress, and Public Law 83-780, was to relieve flooding on the main stems and selected tributaries of the Merrimack and Connecticut Rivers. Blackwater Dam was also authorized to generate hydropower under the Flood Control Act of 1938. However, hydropower was subsequently not economically justified. The Flood Control Act of 1944 allowed the Corps general authority to add recreation activities where public interest (i.e. flood control) is not impacted.

Total Federal lands owned in fee at these projects is 18,501 acres (federal flowage easements are not included in this total). Two New Hampshire agencies, the Department of Resources and Economic Development and the Fish and Game Department, occupy, use, and manage about 75 percent (14,066 acres) of these Federal lands under lease and license agreements with the Corps.

There are a variety of recreation and natural resource opportunities on project lands. Recreational activities include:

- Water Based
  - -boating
  - -fishing
  - -swimming
- Land Based
  - -ball playing
  - -cross-country skiing
  - -field dog training
  - -hiking
  - -horse riding
  - -horse shoe playing
  - -hunting
  - -mountain bike riding
  - -off-road vehicle riding
  - -picnicking
  - -radio airplane operation
  - -snow mobiling
  - -trapping

Natural resource management activities include:

- forest inventories
- timber sales
- fish stocking
- Atlantic salmon restoration
- maintenance and improvement of wildlife habitat
- maintenance of records and identification of archaeological resources
- maintenance of records and protection of threatened or endangered species
- maintenance of property boundaries, roads, and trails

The Corps, under Department of the Army Regulations is responsible for the development of master plans and operational management plans to guide the use of project lands at the flood control reservoirs. New Hampshire agencies involved in lease or license agreements with the Corps are given opportunities to provide input to these plans. The New Hampshire agencies are required to manage the lands in accordance with these plans and have not developed their own independent comprehensive plans for federal project lands.

New Hampshire's management objectives for the project lands are:

- to maintain and improve forest resources
- to maintain and improve fish, game, and non-game wildlife habitat
- to encourage increased compatible recreational use of project lands
- and to improve recreational opportunities for all user groups

The management issues identified by New Hampshire agencies relative to these objectives include access to project lands, exchange of information between State, Federal, and local agencies, education programs at the projects, law enforcement presence on project lands, use of volunteers and local communities to help to maintain projects lands, and decreased responsibility for maintenance of property, such as roads, bridges, and boundaries.

The study did not identify any management conflicts between the State agencies, however agencies are concerned that existing or future Corps' policy and regulation may constrain the range of New Hampshire's future management activities at the projects.

A cooperative effort between the Corps of Engineers, New England Division and the New Hampshire agencies is needed to identify and implement the best alternatives for future recreation and natural resource management at the projects.

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INTRODUCTION

STUDY AUTHORITY

Authority for the Section 22 "Planning Assistance to States", program is contained in the Water Resources Development Act of 1974, Public Law 93-251, as amended. This program authorizes the US Army, Corps of Engineers (Corps) to cooperate with the States in the preparation of plans for the development, utilization and conservation of water and related land resources. Section 319 of the Water Resources Act of 1990, Public Law 101-640, authorizes the Secretary of the Army to collect from non-federal entities, fees for the purpose of recovering fifty percent of Section 22 program costs.

The State of New Hampshire, Department of Resources and Economic Development (the non-federal cost sharing partner) and the Corps, New England Division entered into a Cost Sharing Agreement in September of 1992 under the Section 22 program to conduct this study entitled "Recreation and Natural Resources at Corps Projects in New Hampshire".

STUDY PURPOSE

This report is written for the benefit of New Hampshire agencies. Information is presented on recreation and natural resources at the Corps' flood control projects in New Hampshire. This report is intended to provide information to assist New Hampshire in future resource planning for project lands.

STUDY SITES

The six flood control projects in New Hampshire owned by the Corps of Engineers are (Figure 1):

- Blackwater Dam in Webster and Salisbury, New Hampshire
- Edward MacDowell Lake in, Peterborough, Hancock, Harrisville and Dublin, New Hampshire
- Franklin Falls Dam in Franklin, Hill, Sanborton, and New Hampton, New Hampshire
- Hopkinton-Everett Lakes in Hopkinton, Henniker, Weare, and Dunbarton, New Hampshire
- Otter Brook Lake in Keene and Roxbury, New Hampshire
- Surry Mountain Lake in Surry, New Hampshire

Blackwater Dam, Edward MacDowell Dam, Franklin Falls Dam, Hopkinton-Everett Lakes, and Surry Mountain Lake were approved for construction by the 75th Congress as part of the general comprehensive plan for flood control under the Flood Control Act of 1938. Otter Brook was later approved by the 83rd Congress, under the Flood Control Act of 1954, as an Amendment of the Flood Control Act of 1936. The primary purpose of these projects as stated in House Document Nos. 689 and 455, 75th Congress, and Public Law 83-780, was to relieve flooding on the main stems and selected tributaries of the Merrimack and Connecticut Rivers. Blackwater Dam was also authorized to generate hydropower under the Flood Control Act of 1938. However, hydropower was subsequently not economically justified. The Flood Control Act of 1944 allowed the Corps general authority to add recreation activities where public interest(i.e. flood control) is not impacted.

STUDY SCOPE

The report is based on information compiled from Corps' and New Hampshire reports and from discussions with appropriate New Hampshire agencies.

This report includes the following information:

- A description of the structures, features, and existing agreements for use of project lands
- A description of the recreation and natural resources at the projects and on-going management activities. Natural resources considered are forests, fisheries, wildlife, wetlands, archaeological, and agriculture resources.
- A description of potential future impacts to natural resources.
- An inventory of New Hampshire management objectives, issues, and conflicts which should be addressed in future resource management plans to be developed by the State of New Hampshire.

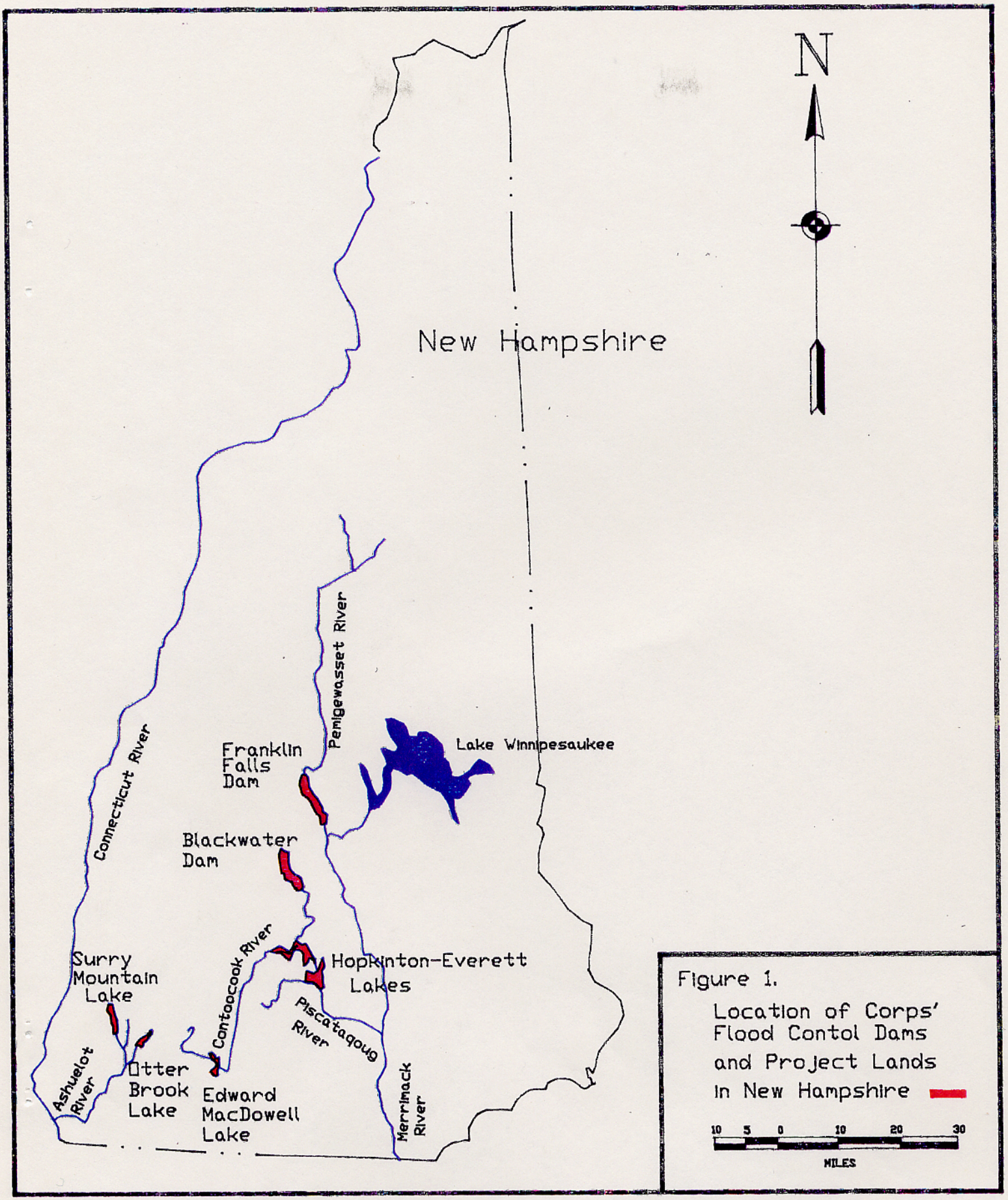


Figure 1.

Location of Corps' Flood Contol Dams and Project Lands in New Hampshire

DESCRIPTION OF LANDS, RESOURCES, AND MANAGEMENT ACTIVITIES

PREFACE

A description of structures, features, agreements, recreation resources, natural resources, and recreation and natural resources management activities for each project is provided in the following appendices:

APPENDIX A Blackwater Dam

APPENDIX B Edward MacDowell Lake

APPENDIX C Franklin Falls Dam

APPENDIX D Hopkinton-Everett Lakes

APPENDIX E Otter Brook

APPENDIX F Surry Mountain

Information contained in these appendices was compiled for this study and is summarized in the following sections.

CORPS LANDS AND OUTGRANTS

The Corps owns 18,501 acres fee at the six flood control reservoirs in New Hampshire (flowage easements are not included in this total). The largest land holdings are at Hopkinton-Everett Lakes, with about 43 percent of the total Corps land holdings in New Hampshire (See Figure 2).

The Corps has outgrants (license and lease agreements) with different entities utilizing the federal land at the flood control projects. New Hampshire agencies and the Corps have entered into three outgrants for about 75 percent of the Corps land holdings (See Table 1).

Table 1. Land Holdings and Outgrants at Corps' Flood Control projects in New Hampshire (*)

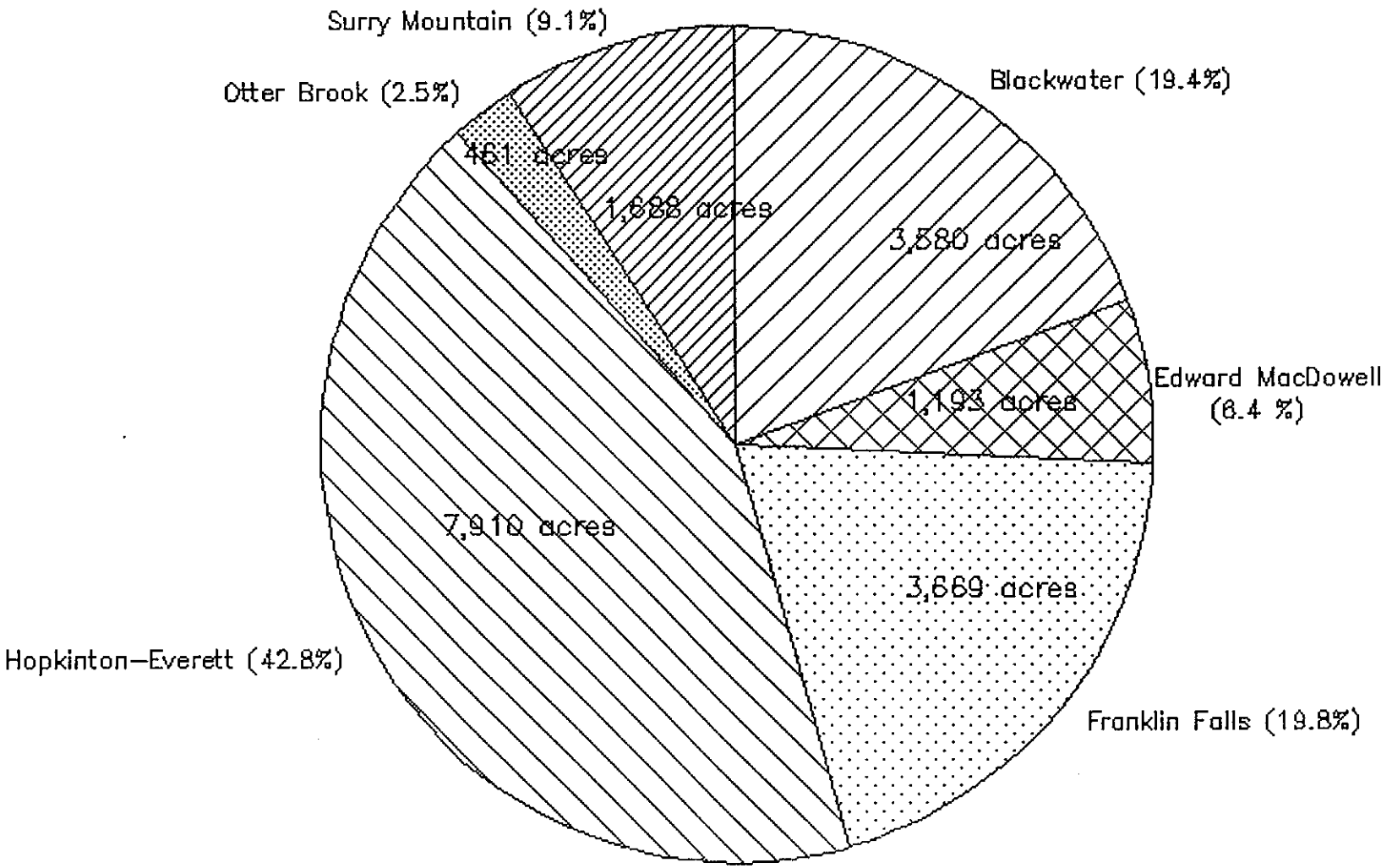
Project	Corps' Land Holdings (acres)	New Hampshire Outgrants (acres)	Agricultural Outgrants (acres)	Other Outgrants (acres)
Blackwater	3,580	3,233	225	none
Edward MacDowell	1,193	1,030	none	none
Franklin Falls	3,669	3,514	46	none
Hopkinton-Everett	7,910	6,289	268	22
Otter Brook	461	0	none	none
Surry Mountain	1,688	0	none	13
Total	18,501	14,066	539	35

* Does not include easements across federal property for rights of way.

The largest of the three outgrants is for about 13,000 acres at Blackwater Dam, Franklin Falls Dam, and Hopkinton-Everett Lakes. This 25 year license granted to New Hampshire in 1989 expires in 2014. The land is managed by the New Hampshire Department of Resources and Economic Development, Division of Forest and Lands, for fish and wildlife, forest management, and other natural resource purposes. Under the agreement, revenues generated from timber sales at the projects may go to New Hampshire to fund land management activities at the three projects.

The second largest outgrant is for about 1,000 acres at Edward MacDowell. This 25 year license granted in 1978 expires in 2003. Land is managed by the New Hampshire Fish and Game Department for fish and wildlife purposes.

Figure 2. Federal Land Holdings at Corps' Flood Control Projects in NH



The smallest of the three New Hampshire outgrants if for lands known as Clough Park, 50 acres near Everett Lake. This 5 year lease granted in 1989 expires in 1994. New Hampshire Department of Resources and Economic Development, Division of Parks and Recreation, manages the park and collects entrance fees to fund the operation and maintenance of the park.

The Corps also leases 539 acres to farmers for agricultural purposes and 35 acres to other groups for recreational purposes.

RECREATION

The Corps lands provide ideal opportunities for outdoor recreation. Of the six projects, Hopkinton-Everett has the highest visitor attendance, followed by the Surry Mountain and Otter Brook projects. Edward MacDowell, Franklin Falls, and Blackwater Dam projects have lower visitor attendance (See Figure 3).

Corps projects in New Hampshire are for the most part, small lakes with recreational facilities and lands developed primarily for day use. The recreational activities at the projects include:

Water Based
boating
fishing
swimming

Land Based
ball playing
cross-country skiing
field dog training
hiking
horse riding
horse shoe playing
hunting
mountain bike riding
off-road vehicle riding
picnicking
radio airplane operation
snow mobiling
trapping

Facilities have been developed at the projects to enhance the recreational use of the projects. Figure 4 presents information on the recreational facilities available at each project.

Three of the projects, Hopkinton-Everett Lakes, Otter

Brook Lake, and Surry Mountain Lake have day use areas with sandy beaches and picnic areas. The recreation areas at Surry Mountain Lake and Otter Brook Lake are operated by the Corps. Hopkinton-Everett has two main recreation areas. The one at the Elm Brook Pool is operated by the Corps. The one at Clough Park is operated by New Hampshire Department of Resources and Economic Development, Division of Parks and Recreation.

Edward MacDowell Lake has a small but attractive picnic area adjacent to the dam, but no beach area. Franklin Falls Dam has a picnic area at the north end of the project adjacent to Profile Falls. Blackwater Dam is not developed as a swimming and picnicking area.

Several sites on project lands are stocked with trout and game birds by New Hampshire Fish and Game Department. Fishing, hunting and trapping are permitted at all projects. Five of the reservoirs have either canoe launch sites or boat launch ramps for lake access.

All of the projects provide opportunities for hiking and other trail related activities. The Corps and New Hampshire have been working to develop a portion of the New Hampshire Heritage trail at the Franklin Falls Project. The Hopkinton-Everett project has a trail area designated and maintained for off-road vehicle use.

Corps park rangers at the projects present a wide range of interpretive programs for the public. Close working relationships with school and civic groups afford an opportunity for young people to begin to understand and appreciate the world of nature. For example, in 1991 there were:

60 interpretive programs conducted at Otter Brook Lake

41 interpretive programs conducted at Edward MacDowell Dam

54 interpretive programs conducted at Hopkinton-Everett

21 interpretive programs conducted at Surry Mountain Lake

3 interpretive programs conducted at Franklin Falls Dam

0 interpretive programs conducted at Blackwater Dam

Figure 3. Recreation Attendance at Corps Flood Control Projects in NH

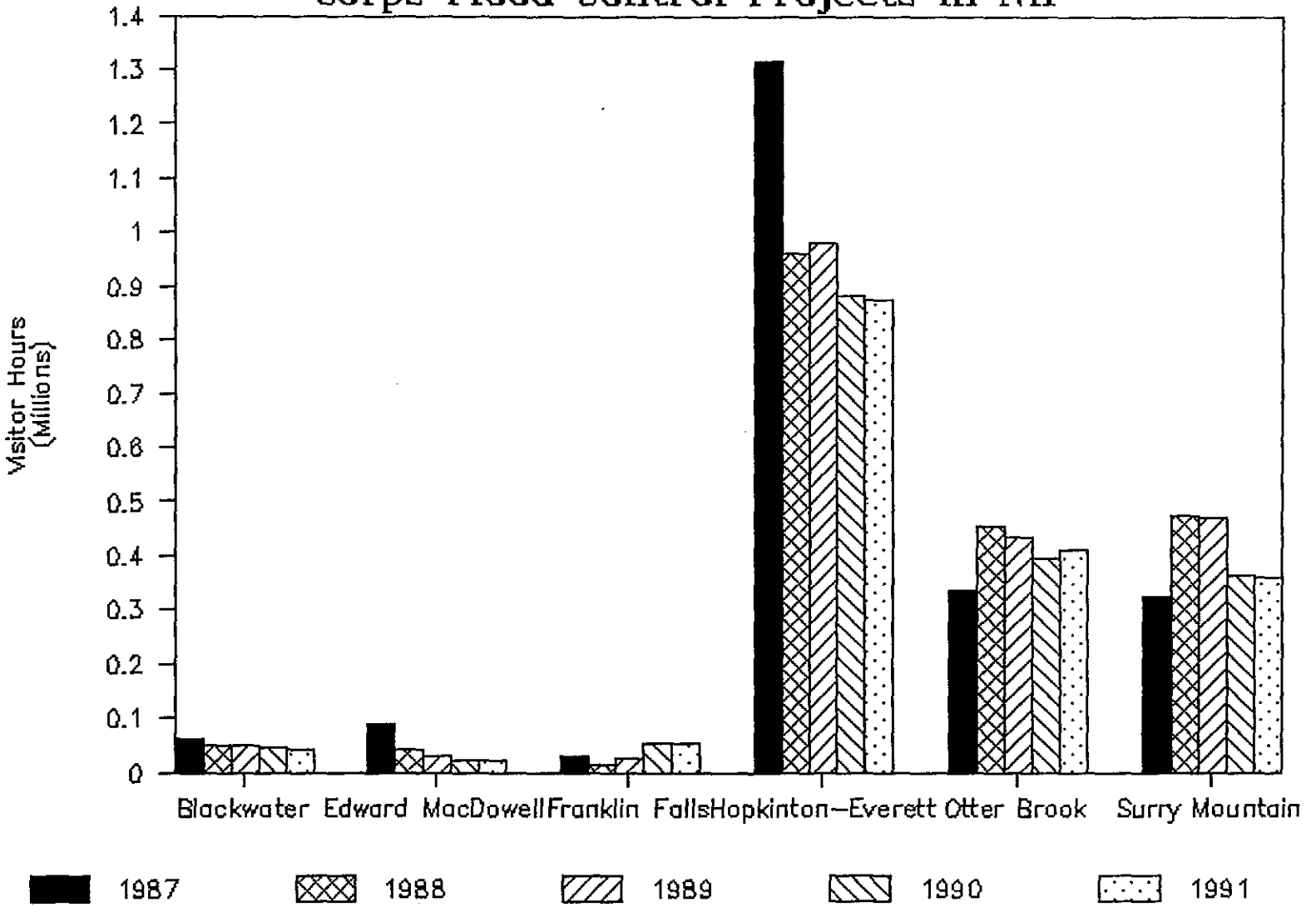


Figure 4. Matrix of Recreation Facilities at Corps' Flood Control Projects in New Hampshire

	Blackwater Dam	Edward MacDowell Lake	Franklin Falls Dam	Hopkinton-Everett Lakes	Otter Brook Lake	Surry Mountain Lake
Overlook Area and Parking	X	X	X	X	X	X
Picnic Area		X	X	X	X	X
Swimming Beach				X	X	X
Canoe Launch		X	X			
Boat Launch				X	X	X
Interpretive Programs		X	X	X	X	X
NH Heritage Trail			X			
Snowmobile Trails	X		X	X		
Radio airplane Oper. Area			X	X		
ORV Use Area				X		
Field Dog Training Area				X		
Athletic Field				X	X	
Horseshoe Pits					X	X

FOREST RESOURCES

The forest resources at the projects consist of a mix of softwoods and hardwoods including white pine, hemlock, oak, maple and a variety of other species. Land management at the projects include the following activities:

- forest inventory
- timber sales
- timber stand improvement including planting, thinning, pruning, and weeding
- road maintenance
- construction of river access points
- boundary line maintenance involving marking and addressing trespasses onto federal land
- trash removal
- law enforcement

New Hampshire Department of Resources and Economic Development, Division of Forest and Lands conducts land management activities at Hopkinton-Everett Lakes, Franklin Falls Dam, and Blackwater Dam. The New Hampshire Fish and Game Department is responsible for most of the lands at Edward MacDowell Dam, however they conduct minimal land management activities. The Corps manages the land at Otter Brook Lake and Surry Mountain Lake and assists to varying extent with land management activities at the other four projects.

FISHERIES

The rivers, lakes and streams at the projects provide both warm and cold water fisheries habitat. The management of fisheries at the projects is mainly directed towards improving recreational fishing. Trout are stocked at various locations at all the projects by New Hampshire Fish and Game Department.

As part of the Atlantic salmon restoration program in the Merrimack River Basin, the Pemigewasset River, above Franklin Falls dam, has been stocked with Atlantic salmon juveniles for several years. In addition, plans are being finalized to begin stocking adult salmon in the Pemigewasset from Ayers Island to the Smith River; thus, providing adult Atlantic salmon fishing opportunities.

WILDLIFE

The project areas provide forest, open field, marsh, and open water habitats for wildlife. Many different species of birds, mammals, reptiles and invertebrates are reported to live on the project lands. In general, the projects support those species found throughout New Hampshire. Of particular note, the dwarf wedge mussel, a federal and state endangered species, is present in the Ashuelot River downstream of Surry Mountain dam.

Wildlife management activities at the projects are carried out by the Corps, New Hampshire Department of Resources and Economic Development, New Hampshire Fish and Game Department and volunteer groups. Activities include:

- prescribed burns to maintain field habitats
- small annual hay sales
- apple tree pruning and release programs
- installation and monitoring of duck and bird nesting boxes
- encouraging special use permits to allow old agricultural fields to be sown with seed suitable for wildlife food
- planting of seed for water fowl food in impoundments
- monitoring of trapping results and management of trapping permits
- banding of Canadian geese

In addition, forest management activities for timber production have opened up the project lands and provided additional food cover and habitat diversity for wildlife.

The Corps has recently signed a cooperative agreement with the US Fish and Wildlife Service (FWS)in June 1992 to further the goals of the North American Waterfowl Management Plan of May 1986. Under this agreement the Corps in coordination with the FWS will attempt to identify wetland habitat improvement opportunities for Corps projects. Activities under this agreement are subject to the availability of funds and personnel. As of February 1993 no projects have been initiated by the Corps under this agreement.

WETLANDS

The total number of acres and type of wetlands at each of the flood control project have not been determined by the Corps or the New Hampshire agencies. Wetlands for the project areas are mapped on the National Wetland Inventory maps prepared by the U.S. Fish and Wildlife Service. However, these maps do not show the boundaries of the Corps' land holdings. Also, some of the wetlands at Blackwater Dam, Franklin Falls Dam, and Hopkinton-Everett Lakes are delineated on the Department of Resources and Economic Development forest management maps prepared for the projects.

Wetlands management activities at the projects involve primarily protection and conservation efforts. Wetlands at the projects are protected under Sections 404 and 401 of the Clean Water Act. Although Corps actions at the projects are not required to obtain a permit, the Corps complies with the substantiative requirements of these laws. State actions are required to follow the permitting process.

ARCHAEOLOGICAL RESOURCES

All the projects are likely to contain archaeological resources (remains of past human life and activities). The types of resources on project lands include the remains of old towns, farms and mills. For instance, the construction of Franklin Falls Dam required moving the Town of Hill. Remnants of the town still remain on the project lands. At Otter Brook and Surry Mountain there are identified historical farm/residence sites. The projects also have the potential to contain prehistoric sites, such as areas utilized by aboriginal peoples inhabiting and hunting in the area.

These resources are protected under Section 110 of the National Historic Preservation Act of 1966, as amended. This act states that Federal agencies should establish a program to locate and inventory properties and to exercise caution to ensure that any property which might qualify for the National Register of Historic Places not be inadvertently transferred, sold, demolished, substantially altered or allowed to deteriorate significantly.

The Corps in accordance with this law has prepared two archaeological reconnaissance survey reports, Surry Mountain Lake in 1979 and Blackwater Dam in 1989. The Corps is currently working on reports at Otter Brook Lake and Hopkinton-Everett Lakes and the final reports should be completed in 1993. The Corps plans to begin work at Edward MacDowell Lake in 1994. The date for the inventory at

Franklin Falls Dam is not yet planned. In addition to the Corps reports, New Hampshire State Historic Preservation Office maintains a data base and records of existing information on archeological and historic resources within the State. The Corps and the New Hampshire State Historic Preservation Office also review planned activities at the projects to determine and prevent or mitigate potential impacts to archaeological resources at the projects.

AGRICULTURAL RESOURCES

There are about 539 acres in agricultural leases at three of the projects, Blackwater, Franklin Falls, and Hopkinton-Everett. The other projects do not have agricultural leases. Land management conditions appropriate to the sites are incorporated by the Corps in the lease agreements with the farmers.

POTENTIAL FUTURE IMPACTS TO NATURAL RESOURCES

Potential future actions at the Corps flood control projects include flood control operations, recreational activities, timber sales, and maintenance of structures and facilities. Assuming these actions occur, future impacts have the potential to include:

- disturbance to fisheries habitat
- flooding of forest resources
- disturbance and destruction of wildlife habitat
- disturbance of wetlands
- disturbance of archaeological sites
- disturbance of agricultural sites

However, all actions at the Corps' projects are reviewed for compliance with Federal environmental laws and regulations and all future actions would be required to meet the requirements of these laws and regulations.

NEW HAMPSHIRE MANAGEMENT OBJECTIVES, ISSUES, AND CONFLICTS

RECREATION AND NATURAL RESOURCES OPERATION AND MAINTENANCE

The operation and maintenance of the six flood control projects and associated lands in New Hampshire is the responsibility of the Corps, New England Division. The primary function of these projects is achievement of reduction in downstream flows by holding back storm runoff during high stream flow conditions; thereby, reducing downstream flooding and flood damages. However, besides flood control, the projects and associated Federal lands provide opportunities for recreation and natural resources management.

The New Hampshire agencies are concerned with the long-term resource management of these lands for two reasons. First, because the federal lands (18,501 acres) represent opportunities for recreation and natural resources management within the State. Second, because two agencies, New Hampshire Department of Resources and Economic Development (DRED) and the New Hampshire Fish and Game Department, occupy, use, and manage about 75 percent (14,066 acres) of these Federal lands under license and lease agreements with the Corps.

The Corps under Department of the Army Regulations is responsible for the development of master plans and operational management plans for the use of project lands at the flood control reservoirs, as well as other planning and evaluation reports on the projects. Reports prepared or planned for each of the projects are summarized in Appendix G.

The Corps prepared master plans for use of recreational and natural resources at the New Hampshire projects in the 1960's and 1970's. The master plans guide the use and development of the natural resources at a given project. Fish and Wildlife and Forest Management Plans were prepared in the 1980's in cooperation with the appropriate New Hampshire agencies and are appendices to the Master Plans.

Currently, the Corps is preparing Operational Management Plans (OMP) that will describe in detail how resource objectives prescribed in the Master Plans will be implemented and achieved. The OMP for Franklin Falls and the Otter Brook projects are scheduled for 1993 and Surry Mountain is scheduled for 1994.

Under the lease and license agreements between the Corps and the State, the State is required to manage the federal property in accordance with Corps' plans. New Hampshire agencies are given opportunities to provide input to plans. The New Hampshire agencies have not developed their own independent comprehensive plans for lands at the Federal flood control projects.

NEW HAMPSHIRE AGENCY CONTACTS

The appropriate New Hampshire agencies were contacted to identify New Hampshire's management objectives, issues, and conflicts at the flood control projects (see Table 2). Each of the agencies has responsibility for a different area of recreation and natural resources. The extent to which each of these agencies is involved in management activities on the Corps' flood control lands varies.

New Hampshire Department of Resources and Economic Development (DRED), Division of Forest and Lands is responsible for management of lands at Blackwater Dam, Franklin Falls Dam, and Hopkinton-Everett Lakes. DRED, Division of Forest and Parks, operates Clough Park. DRED, Trails Bureau manages the off-road vehicle special use area at Hopkinton-Everett. The Natural Heritage Program, also under DRED, is responsible for the State's rare and endangered plants program.

The New Hampshire Fish and Game Department manages the land at Edward MacDowell and conducts a variety of activities at the projects including: stocking of fish and game; issuing trapping permits and monitoring the harvest; and improving fish and wildlife habitat. The New Hampshire Fish and Game is also responsible for the State's rare and endangered wildlife program and is part of the State multi-disciplinary land management team that review's DRED's proposed timber sales.

The Office of State Planning has no direct involvement in management of the federal lands, although it does prepare a policy plan "State Comprehensive Outdoor Recreation Plan", for New Hampshire every five years.

The Department of Environmental Services is not involved in management of project lands. However, the Water Quality Section may sometimes sample the lakes at the projects. The Rivers Management Section is involved in the New Hampshire Rivers Management and Protection Program on the Pemigewasset River, location of the Franklin Falls project.

The New Hampshire Historic Preservation Office maintains information on historic and archaeological resources for the

State and is part of the State multi-disciplinary land management team that review DRED's proposed timber sales.

Table 2. New Hampshire Agency Contacts

NEW HAMPSHIRE DEPARTMENT OF RESOURCES AND ECONOMIC DEVELOPMENT

Division of Parks and Recreation
- Joseph Quinn, Land and Water Conservation Fund
- Thomas Mattson, Chief of Community Recreation
- Paul Grey, Trails Bureau

Division of Forests and Lands
- James Carter, Land Management
- Thomas Miner, Forest Management
- Raymond Boivin, Regional Forester
- Robert MacGregor, Lease Manager

Natural Heritage Program
- Andrew Cutko

NEW HAMPSHIRE FISH AND GAME DEPARTMENT
- Charles Miner, Federal Aide Coordinator
- Steve Wheeler, Region 4 Supervisor (does not include Franklin Falls)
- Ted Walski, Region 4, wildlife biologist
- Shirley Ahern, wildlife biologist, trapping permits, rare species inventories.
- Judi Silverburg, wildlife education program
- Linda Pothier, wildlife, bio-aide
- Edward Robinson, wetlands, waterfowl
- Charles Bridges, upland biologist, land management
- John Greenwood, salmon restoration program

NEW HAMPSHIRE OFFICE OF STATE PLANNING
- Christine Rowinski, State Comprehensive Outdoor Recreation Planning

NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES
- Richard Flanders, Water Quality and Permits
- Robert Estabrook, Biology Bureau
- Kathy Ueland, Rivers Management Program

NEW HAMPSHIRE HISTORIC PRESERVATION OFFICE
- Gary Hume

OTHER
- Hopkinton/Everett Lakes Dog Club Association
- John Whitehall and Ron Stevenson

MANAGEMENT OBJECTIVES AND ISSUES

Based on discussions with the New Hampshire agencies, it appears their objectives for the project lands are:

- to maintain and improve forest resources
- to maintain and improve fish, game, and non-game wildlife habitat
- to encourage increased compatible recreational use of project lands
- to improve recreational opportunities for all user groups

Several issues were identified by the New Hampshire agencies relative to these objectives. For discussion purposes these issues are grouped into several categories: Access, Communication, Education, Law Enforcement, and Program Funding.

ACCESS - The ease with which a user group can get to recreational opportunities at the Federal flood control projects depends on the availability of access points and facilities. Issues identified include:

- improve access for the handicapped
- improve access for senior citizens
- improve parking for school buses
- improve general parking on project lands
- increase launch areas for car top boats
- provide boat ramp for salmon stocking at Franklin Falls
- improve maintenance of roads and bridges
- develop off-road vehicle special use areas
- develop and maintain all types of trail systems

COMMUNICATION - Information needs to be exchanged between the State, Corps, local communities, and the public in order to encourage use of the recreational opportunities at the projects. Also the sharing of information between the Corps and the New Hampshire agencies on forest and wildlife resources will encourage efficient management of these resources. Issues identified include:

- o increase public awareness of recreational opportunities
- o increase exchange of information with Corps

EDUCATION - Teaching about the natural resources at the projects and the proper way to enjoy the recreational resources including hunting and fishing will help to encourage compatible recreational use of the resources. Issues identified included:

- o increase interpretive programs
- o provide habitat demo areas
- o provide hunter education courses and field test areas

LAW ENFORCEMENT - Increased law enforcement presence on project lands through improved cooperation of local, state, and federal law enforcement agencies to:

- o decrease trash dumping
- o decrease vandalism
- o decrease vehicle abandonment
- o decrease theft of forest products

PROGRAM FUNDING - The amount of staff time and funding available to the New Hampshire agencies to carry out activities at the projects is limited. Activities at Blackwater, Franklin Falls, and Hopkinton-Everett are funded by timber sales at these projects. The Clough Park at the Hopkinton-Everett project is funded from entry fee collection at the park and revenues generated from entry fee collection at other State parks. Fish and Game Department uses

Pittman-Robertson Federal Aid in Wildlife Restoration Funds to assist in activities at the projects. The State agencies are interested in exploring ways to expand recreation and natural resource management activities at the projects without increasing expenditures at the projects. Issues identified included:

- o involve volunteer groups
- o involve local communities
- o encourage agricultural leases
- o decrease boundary maintenance and marking responsibility and responsibility for maintenance of roads and bridges

Volunteer and local community groups could be used to assist with fish and wildlife habitat improvement and implementing solutions to the access issue. Encouragement of agricultural leases could help to keep fields open for wildlife. If project infrastructure responsibility were decreased more time could be spent by New Hampshire on timber maintenance and fish and wildlife activities.

MANAGEMENT CONFLICTS

The study did not identify any significant management conflicts between the State agencies on project lands. DRED, Division of Forests and Lands appear to coordinate all forest management activities with the Fish and Game Department and with the multi-disciplinary land management team. The Fish and Game Department's management activities involve annual habitat improvement programs, stocking of fish and game, and trapping activities. These activities do not appear to cause management conflicts with other uses. DRED, Division of Parks and Recreation operates Clough Park and the off-road vehicle special use area at Hopkinton-Everett. These areas are specifically designated for these uses.

The New Hampshire agencies are concerned that existing or future Corps' plans, policies, and regulations may constrain the range of New Hampshire's future management activities at the projects. Rhetorical questions asked by New Hampshire are:

- What are existing and future outgrant restrictions on Corps lands that might limit potential measures?
- Could the State of New Hampshire take over recreational management of all project areas?
- What are Corps plans/policy regarding future recreational development on project lands?
- What is Corps existing and future policy/regulation regarding use of volunteer groups that might limit potential measures?
- What will be the Corps' policy on maintenance and improvement of real property within the lease area?

A cooperative effort between Corps' staff and the New Hampshire agencies is needed to identify and implement the best alternatives for future recreation and natural resource management at the projects.

SUMMARY

The Corps under Department of the Army Regulations is responsible for the development of master plans and operational management plans to guide the use of project lands at the flood control reservoirs. New Hampshire agencies involved in lease or license agreements with the Corps are given opportunities to provide input to these plans. The New Hampshire agencies are required to manage the lands in accordance with these plans and have not developed their own independent comprehensive plans for use of the federal project lands.

New Hampshire's management objectives for the project lands are:

- to maintain and improve forest resources
- to maintain and improve fish, game, and non-game wildlife habitat
- to encourage increased compatible recreational use of project lands
- and to improve recreational opportunities for all user groups

The management issues identified by the New Hampshire agencies relative to these objectives include access to project lands, exchange of information between State, Federal, and local agencies, education programs at the projects, law enforcement presence on project lands, use of volunteers and local communities to help to maintain projects lands, and decreased responsibility for boundary maintenance and marking.

The study did not identify any management conflicts between the State agencies, however agencies are concerned that existing or future Corps' policy and regulation may constrain the range of New Hampshire's future management activities at the projects.

A cooperative effort between the Corps of Engineers and the New Hampshire agencies is needed to identify and implement the best alternatives for future recreation and natural resource management at the projects.

APPENDIX A

BLACKWATER DAM

BLACKWATER DAM

INTRODUCTION

The Blackwater Dam flood control project is located in the communities of Webster and Salisbury, New Hampshire. The project consists of a flood control dam on the Blackwater River, associated facilities, and project lands. The dam has a 16-foot penstock intake to allow for future addition of hydropower. Project information is presented in Table A-1. A map of the project is included at Figure A-1.

The dam has the capacity to hold back 46,000 acre-feet of water during a flood event, however most of the time water is not impounded behind the dam and Blackwater River is free flowing.

Natural features of the project lands include forests, several small streams, wetlands and Greenough Pond.

Table A-1. Information on Blackwater Dam Flood Control Project

River Basin:	Merrimack
River Drainage	Blackwater River to Contoocook River to Merrimack River
Date of Completion:	November 1941
Authorized Purpose:	Flood Control, Hydropower
Drainage Area:	128 square miles

Reservoir Operating Level	Elevation (ft, ngvd)	Surface Area (acres)	Capacity (acre-feet)
Invert (1)	515	---	---
Spillway Crest	566	3,280	46,000

(1) No reservoir pool maintained at the project.

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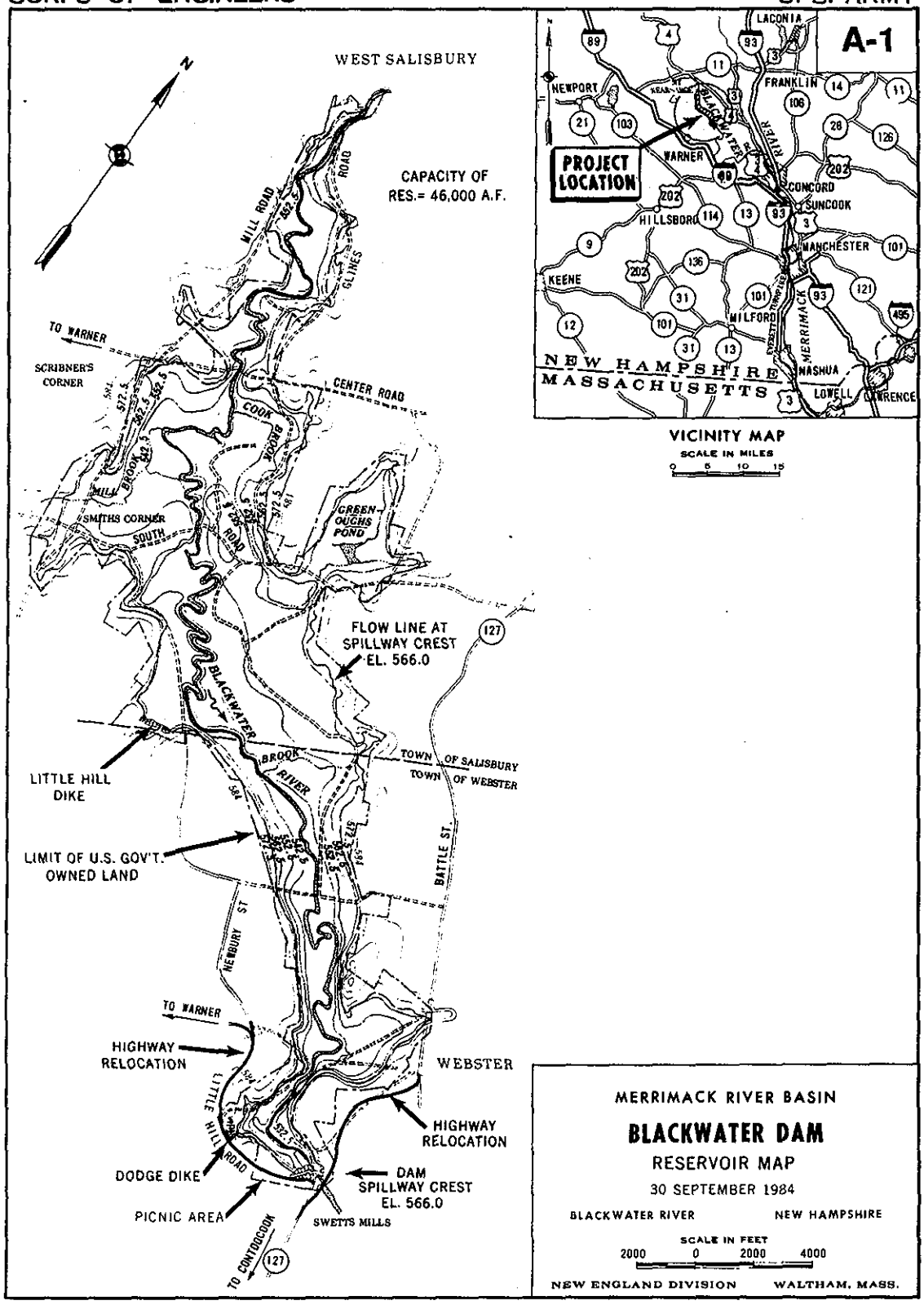

BLACKWATER DAM PROJECT LANDS

The Federal government owns 3,580 acres of land at the Blackwater Dam. A large portion of the project lands, about 90 percent (3,233 acres), are licensed to the New Hampshire, Department of Resources and Economic Development (DRED). The license was renewed in 1989 for a period of 25 years. The license also includes areas at Franklin Falls and Hopkinton Everett flood control projects. Table A-2 presents information on Federal land acquisition and outgrants.

There are several town roads that run through the project lands and are used for daily travel. These roads are maintained by the town.

Table A-2. Blackwater Dam Land Acquisition and Outgrants

Federal Project Lands:	
Fee (acres)	3,580
Easement (acres)	On all town roads within reservoir to Elevation, 566 ft (ngvd)
Outgrants(1):	
DRED (acres)	3,233
Agricultural (acres)	225

(1) Does not include outgrants for rights of way.

BLACKWATER DAM RECREATION

Activities - Recreational Activities at the project include:

Water Based
boating
fishing

Land Based
cross-country skiing
hiking
hunting
mountain bike riding
picnicking
snow mobiling
trapping

Facilities - There is an overlook area and a parking area at the dam. There are marked snowmobile trails on the project lands.

Management Activities - The Corps maintains the overlook area at the dam. The project lands are managed by DRED.

BLACKWATER DAM FOREST RESOURCES

Forest Cover - In general most of the Blackwater Dam project lands are in forest cover of white pine, red oak, and hemlock. New Hampshire DRED's lease manager noted that this area has one of the best timber stands of white pine in the State.

Management Activities - The project lands are managed by DRED and activities include:

- o forest inventory
- o timber sales
- o timber stand improvement including planting, thinning, pruning, and weeding
- o road maintenance
- o construction of river access point
- o boundary line maintenance involving marking and addressing trespasses onto Federal land
- o trash removal
- o law enforcement
- o wildlife habitat improvement

The average annual timber cut at the project is about 300,000 board-feet. (Telecom, B. Blumeris, USACOE and B. MacGregor, New Hampshire DRED Lease Manager, 7/9/1992) Revenues from timber sales at the project go to the State of New Hampshire. These revenues along with timber sale revenues from Franklin Falls Dam and Hopkinton-Everett Projects are used by DRED to fund land management activities at these projects.

Timber sales at the project are coordinated with other New Hampshire Natural Resource agencies to provide for improved wildlife habitat and protection of sensitive areas.

BLACKWATER DAM FISHERIES

Description - The Blackwater River is a free flowing natural river throughout its entire length and provides for good trout habitat. Fish reported at the project (DRED and USACOE, 1981) include :

bluegill
brook trout
brown trout
brown bullhead
chain pickerel
pumpkinseed
rainbow trout
smallmouth bass
white perch
white sucker

Management Activities - Blackwater River is stocked with trout annually by New Hampshire Fish and Game Department.

BLACKWATER DAM WILDLIFE

Description - The project area provides forest, marsh, and openwater wildlife habitats. The Fish and Wildlife Management Plan (DRED and USACOE, 1981) contains a partial list of mammals and birds at the project. These are:

American black bear
beaver
big brown bat
common shrew
deer mouse
eastern chipmunk
eastern skunk
fisher
field mouse
gray squirrel
hairy-tailed mole
little brown bat
mink
moose
muskrat
porcupine
raccoon
red fox
red squirrel
river otter
southern bog lemming
southern flying squirrel
star-nosed mole
white-tailed deer
white-footed mouse
woodchuck
American widgeon
American woodcock
black-capped chickadee

bald eagle
belted kingfisher
black duck
blue jay
broad winged hawk
bufflehead
blue-winged teal
Canada goose
canvasback
cedar waxwing
common merganser
common crow
common snipe
downy woodpecker
goldeneye
goshawk
green-winged teal
great blue heron
horned lark
hairy woodpecker
kestrel
killdeer
lesser scaup
mallard
marsh hawk
morning dove
peregrine falcon
red-breasted merganser
red-tailed hawk
ring-necked pheasant
robin
ruffed grouse
saw-whet owl
snow goose
white-breasted nuthatcher
wood duck
yellow-shafted flicker
yellow bellied sapsucker

Management Activities - The New Hampshire Fish and Game Department's wildlife management activities at the project include:

- o woodcock habitat improvement
- o pheasant stocking
- o installation and maintenance of nest boxes for waterfowl
- o apple tree release program
- o encouraging special use permits to allow old agricultural fields to be sown with seed for plants suitable for wildlife food
- o issuing trapping permits and monitoring the harvest

Forest management for timber production has opened up the project lands and provided additional food cover and habitat diversity for wildlife.

BLACKWATER DAM WETLANDS

Description - There are wetlands on project lands. Wetlands at the project are included on the DRED forest management maps. The number of acres of wetlands has not been calculated.

Management Activities - Wetlands management activities at the projects involve primarily protection and conservation efforts. Wetlands at the projects are protected under the Section 404 and 401 of the Clean Water Act. Although Corps actions at the projects are not required to obtain a permit, the Corps complies with the substantiative requirements of these laws. State actions are required to follow the permitting process.

BLACKWATER DAM ARCHAEOLOGICAL RESOURCES

Description - The archaeological resources reconnaissance survey of the Blackwater Dam project area recorded many historic sites and identified areas with potential prehistoric site potential. (USACOE, 1989).

Management Activities - These resources are protected under Section 110 of the National Historic Preservation Act of 1966, as amended. This act states that Federal agencies should establish a program to locate and inventory properties and to exercise caution to ensure that any property which might qualify for the national Register of Historic Places not be inadvertently transferred, sold, demolished, substantially altered or allowed to deteriorate significantly.

BLACKWATER DAM AGRICULTURAL RESOURCES

Description - There are 225 acres in Federal agricultural outgrants.

Management Activities - Corps administers agricultural outgrants.

BLACKWATER DAM REFERENCES

State of New Hampshire and Department of Resources and Economic Development, Division of Forest and Lands, Annual report to the Army Corps of Engineers, 1987, 1988, 1989, 1990

State of New Hampshire and Department of Resources and Economic Development, Division of Forest and Lands and US Army Corps of Engineers, New England Division, Blackwater Dam Forest Management Plan, Appendix B and Fish and Wildlife Management Plan, Appendix D, 1981.

US Army Corps of Engineers New England Division, Archaeological Reconnaissance Survey of the Blackwater Dam and Reservoir in Salisbury New Hampshire, 1989.

US Army Corps of Engineers New England Division, Class I Water Quality Projects Without, Permanent Pools, Water Quality Evaluation Update, 1988

US Army Corps of Engineers New England Division, Blackwater Dam, Hydropower Study, Webster New Hampshire, 1986.

US Army Corps of Engineers, New England Division, Blackwater Dam, Drought Contingency Storage Plans, 1985.

US Army Corps of Engineers, US Army Corps of Engineers, New England Division, Blackwater Dam, Water Quality Evaluation, 1983.

US Army Corps of Engineers, New England Division, Blackwater Dam, Dam Break Flood Analysis, 1981.

US Army Corps of Engineers, New England Division, Blackwater Dam, Hydropower study, Reconnaissance Report, 1981.

US Army Corps of Engineers, New England Division, Blackwater Dam, Environmental Assessment of Operation and Maintenance, 1973.

US Army Corps of Engineers, New England Division, Blackwater Dam, Operation and Maintenance Manual, 1972.

US Army Corps of Engineers, New England Division, Blackwater Dam, Master Plan for Reservoir Development, 1972.

US Army Corps of Engineers, New England Division, Merrimack River Basin, New Hampshire and Mass, Master Water Control Manual, 1977.

APPENDIX B

EDWARD MACDOWELL LAKE

EDWARD MACDOWELL LAKE

PROJECT DESCRIPTION

Edward MacDowell Lake flood control project is located in the communities of Peterborough, Hancook, Harrisville, and Dublin, New Hampshire. The project consists of a flood control dam on Nubanusit Brook, associated facilities, and project lands. The project spillway is located about 3.2 miles north of the dam at Halfmoon Pond which discharges to Ferguson Brook. Project Information is presented in Table B-1. A map of the project is included at Figure B-1.

The dam has the capacity to store 12,800 acre-feet during a flood event. However, most of the time, a small "conservation" pool (150 acre-feet) of water is maintained behind the dam.

Natural features of the project lands include forests, small streams, wetlands, and two small permanent bodies of water: Dinsmoor and Beaver Ponds.

Table B-1. Information on Edward MacDowell Lake Flood Control Project

River Basin:	Merrimack
River Drainage:	Nubanusit Brook to Contoocook River to Merrimack River and Ferguson Brook to Contoocook River to Merrimack River
Date of Completion:	April 1950
Authorized Purpose:	Flood Control
Drainage Area:	44 square miles

Reservoir Operating Level	Elevation (ft, ngvd)	Surface Area (acres)	Capacity (acre-feet)
Invert	904	---	---
Conservation Pool	911	165	150
Spillway Crest	946	840	12,800

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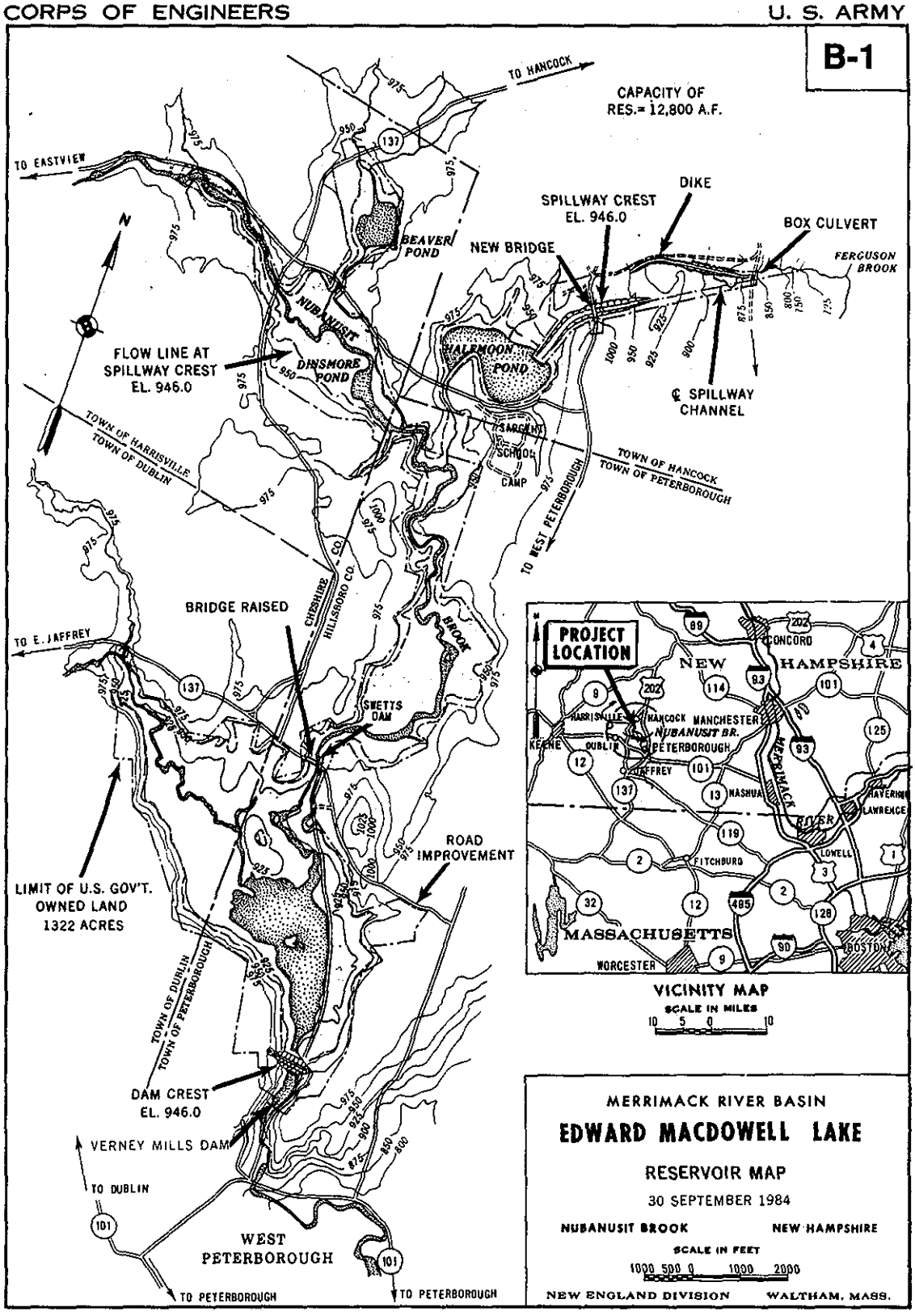

EDWARD MACDOWELL LAKE PROJECT LANDS

The Federal government owns 1,193 acres at Edward MacDowell Lake. A large portion of the project lands, about 86 percent (1,030 acres), is licensed to the State of New Hampshire Fish and Game Department. This license was renewed in 1978 for a period of 25 years. Table B-2 presents information on Federal land acquisition and outgrants.

Table B-2. Edward MacDowell Land Acquisition and Outgrants

Federal Project Lands:	
Acquisition in Fee (acres)	1,193
Easement (acres)	275
Outgrants (1):	
New Hampshire Fish and Game Department (acres)	1,030

(1) Does not include outgrants for rights of way.

EDWARD MACDOWELL LAKE RECREATION

Activities - Recreational Activities at the project include:

Water Based
boating
fishing

Land Based
cross-country skiing
hiking
hunting
mountain bike riding
picnicking
snow mobiling
trapping

Facilities - There is an attractive picnic area at the dam that includes:

14 picnic tables
10 fireplaces
one water fountain
a restroom

There is a canoe launch area, but no swimming beach.

Management Activities - The Corps maintains the picnic area at the dam. The Corps also conducts interpretive nature programs for the public.

EDWARD MACDOWELL LAKE FOREST RESOURCES

Forest Cover - The forest cover is a mixture of softwoods and hardwoods including white pine, hemlock, red oak, red maple, beech, poplar, yellow birch, ash, and other species.

Management Activities - The project lands are licensed to New Hampshire Fish and Game Department for fish and wildlife purposes. There are no recent or planned timber sales at the project. The Corps maintains boundary line markings and the Harrisville Road access route along the east side of the lake.

EDWARD MACDOWELL LAKE FISHERIES

Description - The conservation pool, Nubanusit Brook, and three upstream ponds: Beaver Pond, Dinsmore Pond, and Halfmoon Pond provide good habitat for warm water fish species. Fish reported at the project (USACOE, 1981) include:

bass
bluegill
brown bullhead
brown trout
carp
chain pickerel
eastern brook trout
pumpkinseed
rainbow trout
white perch
white sucker
yellow bullhead
yellow perch

Management Activities - The New Hampshire Fish and Game Department annually stocks trout above and below the dam.

EDWARD MACDOWELL LAKE WILDLIFE

Description - The project area provides forest, marsh and open water environments. The Fish and Wildlife Management Plan provides a partial list of species occurring in the project area. (USACOE, 1981) These are:

cottontail rabbit
gray squirrel
muskrat
porcupine
raccoon
red fox
skunk
snowshoe hare
white-tailed deer*
woodchuck

black duck
bluebird*
Canada geese
great blue heron
kestrel*
mallard duck
mergansers*
osprey
quail*
red-shouldered hawk
ruffed grouse
wild turkey*
woodcock
wood duck

* Suggested additions to 1981 list based on general information encountered during research for this study.

Management Activities - Wildlife management activities include:

- installation and maintenance of wood duck boxes, bluebird boxes, and kestrel boxes
- plantings of wild Japanese millet for duck food
- banding of Canadian geese

New Hampshire Fish and Game Department issues permits for and monitors trapping activities at the project.

EDWARD MACDOWELL LAKE WETLANDS

Description - There are wetlands located on project lands. The numbers of acres of wetlands has not been calculated.

Management Activities - Wetlands management activities at the projects involve primarily protection and conservation efforts. Wetlands at the projects are protected under the Section 404 and 401 of the Clean Water Act. Although Corps actions at the projects are not required to obtain a permit, the Corps complies with the substantiative requirements of these laws. State actions are required to follow the permitting process.

EDWARD MACDOWELL LAKE ARCHAEOLOGICAL RESOURCES

Description - An archaeological resources reconnaissance survey report is scheduled by the Corps for 1993. This report will identify resources at the project.

Management Activities - These resources are protected under Section 110 of the National Historic Preservation Act of 1966, as amended. This act states that Federal agencies should establish a program to locate and inventory properties and to exercise caution to ensure that any property which might qualify for the national Register of Historic Places not be inadvertently transferred, sold, demolished, substantially altered or allowed to deteriorate significantly.

EDWARD MACDOWELL LAKE AGRICULTURAL RESOURCES

Description - There are no agricultural outgrants at the project.

Management Activities - not applicable

EDWARD MACDOWELL REFERENCES

US Army Corps of Engineers, New England Division, Class II Water Quality Projects with permanent pools, water quality evaluation update, 1989.

US Army Corps of Engineers, New England Division, Edward MacDowell Lake, Flood Emergency Plan, 1985.

US Army Corps of Engineers, New England Division, Edward MacDowell Lake, Drought Contingency Storage Plans, 1984.

US Army Corps of Engineers, New England Division, Edward MacDowell Lake, Lake Break Flood Analysis, 1980.

US Army Corps of Engineers, New England Division, Edward MacDowell Lake, Environmental Assessment of Operation and Maintenance, 1976.

US Army Corps of Engineers, New England Division, Edward MacDowell Lake, Nubanusit Brook, Review of Operations of Existing Project, 1975.

US Army Corps of Engineers, New England Division, Edward MacDowell Lake, Operation and Maintenance Manual, 1973.

US Army Corps of Engineers, New England Division, Edward MacDowell Lake, Master Plan for Reservoir Development, 1979.

US Army Corps of Engineers, New England Division, Merrimack River Basin, New Hampshire and Mass Master Water Control Manual, 1977.

APPENDIX C

FRANKLIN FALLS

FRANKLIN FALLS DAM

PROJECT DESCRIPTION

Franklin Falls flood control project is located in the communities of Franklin, Bristol, Hill, Sanborton, and New Hampton, New Hampshire. The project consists of a flood control dam on the Pemigewasset River, associated facilities, and project lands. Information on the project is included in Table C-1. A map of the project is included at Figure C-1.

The dam has the capacity to store (154,000 acre-feet) during a flood event. This represents a limited storage capacity of 2.8 inches of direct runoff. Therefore, Franklin Falls may make releases up to 18,000 cfs to evacuate flood storage in preparation for subsequent events. Most of the time, a smaller pool of water (3,400 acre-feet) is maintained behind the dam. This pool is created by the impounding action of Eastman Falls Dam, a hydroelectric facility in Franklin, located about 1.5 miles downstream of the project. At the upstream end of the project area, on the Pemigewasset River, is Ayers Island Dam, a hydropower project.

Natural features of the project lands include forests, small streams, wetlands, and Profile Falls.

Table C-1. Information on Franklin Falls Dam Flood Control Project

River Basin:	Merrimack
River Drainage:	Pemigewasset River to Merrimack River
Date of completion:	October 1943
Authorized Purpose:	Flood Control
Drainage Area:	1,000 square miles

Reservoir Operating Level	Elevation (ft, ngvd)	Surface Area (acres)	Capacity (acre-feet)
Invert	300	---	---
Permanent Pool	307	440	3,400
Spillway Crest	389	2,800	154,000

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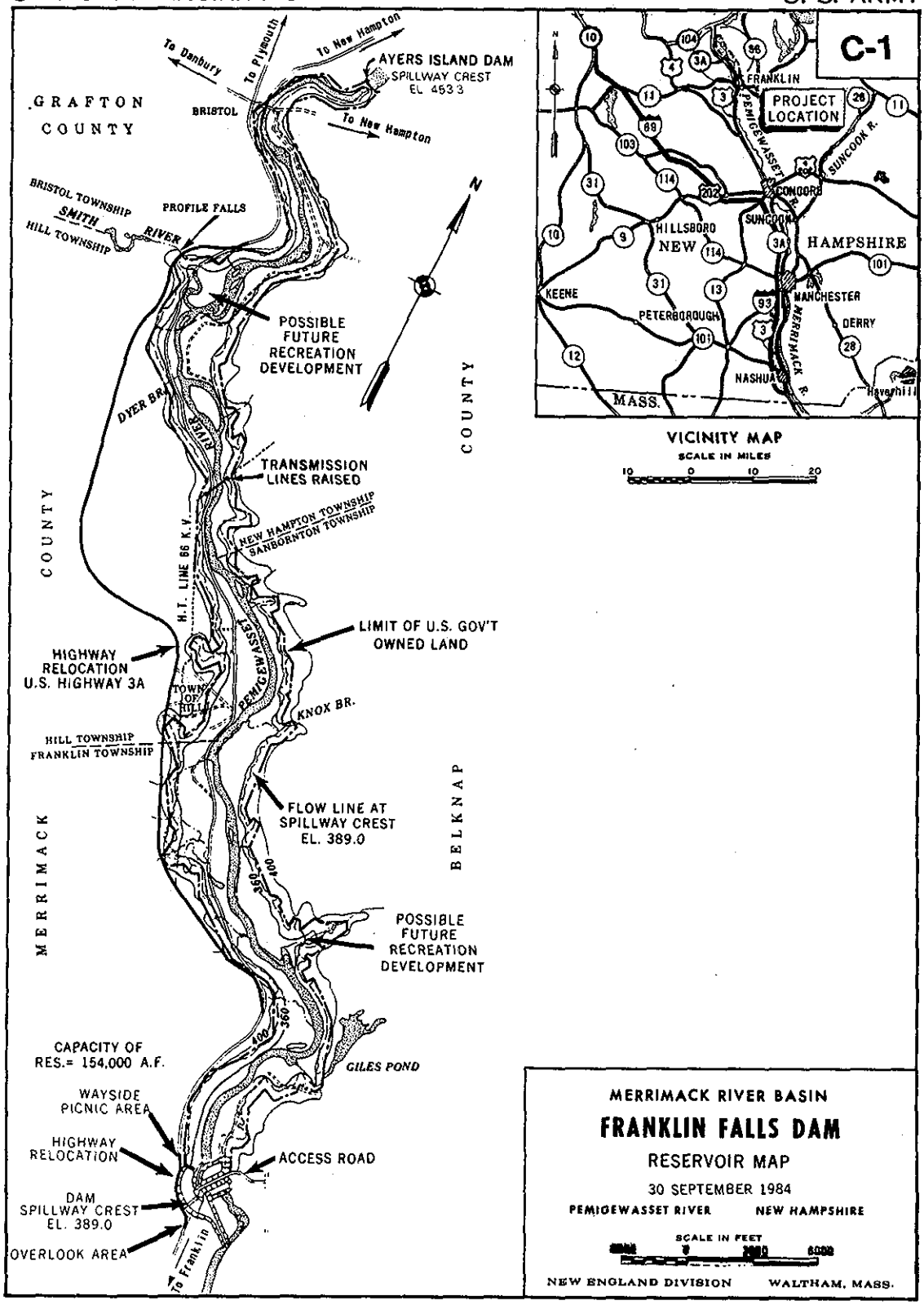

FRANKLIN FALLS DAM PROJECT LANDS

The Federal government owns 3,669 acres of land at Franklin Falls Dam. A large portion of the project lands, about 95 percent (3,514 acres), is licensed to the New Hampshire, Department of Resources and Economic Development (DRED). The license was renewed in 1989 for a period of 25 years. The license also includes areas at Blackwater Dam and Hopkinton-Everett Lakes flood control projects. Table C-2 presents information on Federal land acquisition and outgrants.

Several old roads, including old Route 3A on the west side of the project, allow access to project lands. DRED is currently developing a road closure plan to decrease trash dumping on project lands. Users will be able to park and access the lands by foot. Gates will be constructed on Old Route 3A and Shaw Cove Road.

Table C-2. Franklin Falls Federal Land Acquisition and Outgrants

Federal Project Lands:		
Acquisition in Fee (acres)		3,669
Easement (acres)		15
Outgrants(1):		
DRED (acres)	3,514	
Agricultural (acres)		46

(1) Does not include outgrants for rights of way.

FRANKLIN FALLS DAM RECREATION

Activities - Recreational Activities at the project include:

Water Based
boating
fishing
swimming in the river

Land Based
cross-country skiing
hiking
horse riding
hunting
mountain bike riding
picnicking
radio airplane operation
snow mobiling
trapping

Facilities - Profile Falls, at the northwest end of the project, has a small gravel parking lot and picnic area. There is a canoe launch on the southeast side of the project. DRED, Division of Parks and Recreation is currently working with the Corps to establish a portion of the New Hampshire Heritage Trail System through project lands. The parking area for the trail will be at the dam overlook area and at the Corps' field office parking area. There are also marked snow mobile trails and a radio airplane operation area on project lands.

Management Activities - The Corps maintains the parking and picnic area at Profile Falls. DRED maintains the canoe launch and snowmobile trails.

FRANKLIN FALLS DAM FOREST RESOURCES

Forest Cover - The forest cover is a mixture of softwoods and hardwoods consisting of white pine, red pine, hemlock, and some red spruce. Associated hardwoods include sugar, red oak, red and silver maple, elm, aspen, and alder.

Management Activities - The project lands are managed by DRED and activities include:

- forest inventory
- timber sales
- timber stand improvement including planting, thinning, pruning, and weeding
- road maintenance
- construction of river access point
- boundary line maintenance involving marking and addressing trespasses onto Federal land
- trash removal
- road closure plan
- law enforcement
- wildlife habitat improvement

The average annual timber cut at the project is about 300,000 board-feet. (Telecom, B. Blumeris, USACOE and B. MacGregor, New Hampshire Lease Manager, 7/9/1992) Timber sale revenues along with timber sale revenues from Blackwater Dam and Hopkinton-Everett Lakes are used by DRED to fund land management activities at these projects. Timber sales at the project are coordinated with other New Hampshire Natural Resource Agencies to provide for improved wildlife habitat and protection of ecologically sensitive areas.

The Corps is involved to limited extent in land management activities on the leased lands. In 1991 the Corps arranged to have the 368th Combat Engineering Battalion Army Reserves repair 2 miles of the road bed of Old Route 3A.

FRANKLIN FALLS DAM FISHERIES

Description - The Pemigewasset River above the dam provides warm water fish habitat. Also the Pemigewasset from the Smith River to Ayers Island Dam, Smith River, Knox Brook, and Bennett Brook provide cold water habitat. Fish reported at the project (USACOE, 1981) include:

Atlantic salmon
black-nosed dace
brook trout
brown bullhead
brown trout
chain pickerel
creek chubsucker
eel
fallfish
golden shiner
pumpkinseed
rainbow trout
redfin shiner
smallmouth bass
walleye
white sucker
yellow bulhead

Management Activities - The New Hampshire Fish and Game has two stocking activities. The Pemigewasset has been stocked with Atlantic salmon juveniles for several years as part of the Atlantic salmon restoration program. Also tributary streams are stocked with trout for fishing purposes. In addition, plans are being finalized to stock adult salmon in the Pemigewasset from Ayers Island to the Smith River, providing Atlantic salmon fishing opportunities.

Another management program to protect and maintain the integrity of the river is the New Hampshire Rivers Management and Protection Program. The Pemigewasset River from the Holderness/Ashland townline to the Franklin Falls Flood Control Dam has been designated as a rural river under this program. Designation under this program provides increased State regulatory authority in the areas of water quality, new dam construction, channel alterations, and maintenance of minimum instream flow levels.

FRANKLIN FALLS DAM WILDLIFE

Description - The project area provides primarily forested, wildlife, and open water habitats. The project area does not contain good quality waterfowl habitat.(USACOE 1973) The Fish and Wildlife Management Plan for the project (USACOE, 1982) contains a partial list of species in the area. These are:

black bear
beaver
bobcat
chipmunk
coyote
deer mouse
fisher
gray fox
gray squirrel
meadow vole
mink
moose
muskrat
New England cottontail
northern flying squirrel
opossum
otter
raccoon
red fox
red squirrel
ruffed grouse
snowshoe hare
short-tailed weasel
short-tailed shrew
striped skunk
white-footed mouse
white-tailed deer
woodchuck

American crow
Canada goose
bald eagle
black duck
blue winged teal
broad winged hawk
common loon
common merganser
eastern bluebird
downy woodpecker
finches
flicker
golden eye
great horned owl
goshawk

great blue heron
green-winged teal
hairy woodpecker
hooded merganser
indigo bunting
kestrel
mallard
marsh hawk
morning dove
osprey
pigeon hawk
red-tailed hawk
ringneck pheasant
ring-necked duck
pileated woodpecker
snow bunting
snow goose
sparrows
turkey vulture
warblers
woodcock
wood duck

Management Activities - Wildlife habitat maintenance and improvement program in the Franklin Falls area depends primarily on prescribed burns and timber management activities.

New Hampshire Fish and Game Department stock pheasants annually for hunting purposes, issue trapping permits, and monitor the trapping harvest.

FRANKLIN FALLS DAM WETLANDS

Description - There are wetlands on project lands. Wetlands are located on forest inventory maps developed by DRED for their forest management program. The number of acres of wetlands has not been calculated.

Management Activities - Wetlands management activities at the projects involve primarily protection and conservation efforts. Wetlands at the projects are protected under the Section 404 and 401 of the Clean Water Act. Although Corps actions at the projects are not required to obtain a permit, the Corps complies with the substantiative requirements of these laws. State actions are required to follow the permitting process.

FRANKLIN FALLS DAM ARCHAEOLOGICAL RESOURCES

Description - A archaeological resources reconnaissance survey report has not been prepared for the project. However, a survey is planned in the next few years.

Management Activities - These resources are protected under Section 110 of the National Historic Preservation Act of 1966, as amended. This act states that Federal agencies should establish a program to locate and inventory properties and to exercise caution to ensure that any property which might qualify for the national Register of Historic Places not be inadvertently transferred, sold, demolished, substantially altered or allowed to deteriorate significantly.

FRANKLIN FALLS DAM AGRICULTURAL RESOURCES

Description - There are 46 acres in agricultural outgrants at the project.

Management Activities - Corps administers agricultural outgrants.

FRANKLIN FALLS DAM REFERENCES

US Army Corps of Engineers, New England Division, Franklin Falls Dam, Drought Contingency Storage Plans, 1987.

US Army Corps of Engineers, New England Division, Franklin Falls Dam, Flood Emergency Plan, 1985.

US Army Corps of Engineers, New England Division, Franklin Falls Dam, Water Quality Evaluation, 1984.

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US Army Corps of Engineers, New England Division, Franklin Falls Dam, Operation and Maintenance Manual, 1972.

US Army Corps of Engineers, New England Division, Franklin Falls Dam, Master Plan for Reservoir Development, 1966.

US Army Corps of Engineers, New England Division, Merrimack River Basin, New Hampshire and Mass, Master Water Control Manual, 1977.

APPENDIX D
HOPKINTON-EVERETT LAKES

HOPKINTON-EVERETT LAKES

PROJECT DESCRIPTION

The Hopkinton-Everett Lakes flood control project is located in the communities of Hopkinton, Henniker, Weare, and Dunbarton, New Hampshire. The project consists of two dams, four dikes, two canals, associated facilities, and project lands. Hopkinton Dam is on the Contoocook River and Everett Dam is on the Piscataquog River. Project reservoir areas behind the two dams are connected by canals and the project functions as one flood control system. The spillway at Everett is adjacent to the dam. The spillway at Hopkinton is 1.5 miles east of dam adjacent to a dike. Project information is included in Table D-1. Project map is included at Figure D-1.

Hopkinton and Everett Lakes have the capacity to store 70,800 acre-feet and 92,500 acre-feet of water, respectively, during a flood control event. However, most of the time, small conservation pools (Hopkinton, 700 acre-feet; Everett, 1,000 acre-feet) of water are maintained behind the Dams.

Hopkinton Lake is impacted, during low and normal flows, by flash boards at the downstream Hoague Sprague Dam. The reservoir is maintained at elevation 380 to 382 feet NGVD during the summer and 382 to 384 feet NGVD during the winter.

Everett Lake is maintained by the control weir and stop logs immediately upstream of the center gate at Everett Dam. The Everett reservoir is usually maintained at 341 feet NGVD.

Besides Hopkinton Lake and Everett Lake there are four other impoundments Elm Brook Pool, Stumpfield Marsh, Drew Lake, and Stark Pond. New Hampshire's Clough State Park is located on Everett Lake. Natural features on the project lands include forests, several streams, and marsh areas.

Table D-1. Information on Hopkinton-Everett Lakes Flood Control Project

Hopkinton Lake

River Basin:	Merrimack
River Drainage:	Contoocook River to Merrimack River
Date of completion:	October 1962
Authorized Purpose:	Flood Control
Net Drainage Area:	382 square miles (*)

Reservoir Operating Levels:	Elevation (ft, ngvd)	Surface Area (acres)	Capacity (acre-feet)
Invert	366	---	---
Permanent Pool	380	220	700
Spillway Crest	416	3,700	70,800

* Net Drainage Area - does not include 44 square miles controlled by MacDowell Dam.

Everett Lake

Drainage Basin:	Merrimack
River:	Piscataquog River to Merrimack River
Date of Completion:	December 1961
Authorized Purpose:	Flood Control
Drainage Area:	64 square miles

Reservoir Operating Levels:	Elevation (ft, ngvd)	Surface Area (acres)	Capacity (acre-feet)
Invert	325	---	---
Conservation Pool	341	130	1,000
Spillway Crest	418	2,900	92,500

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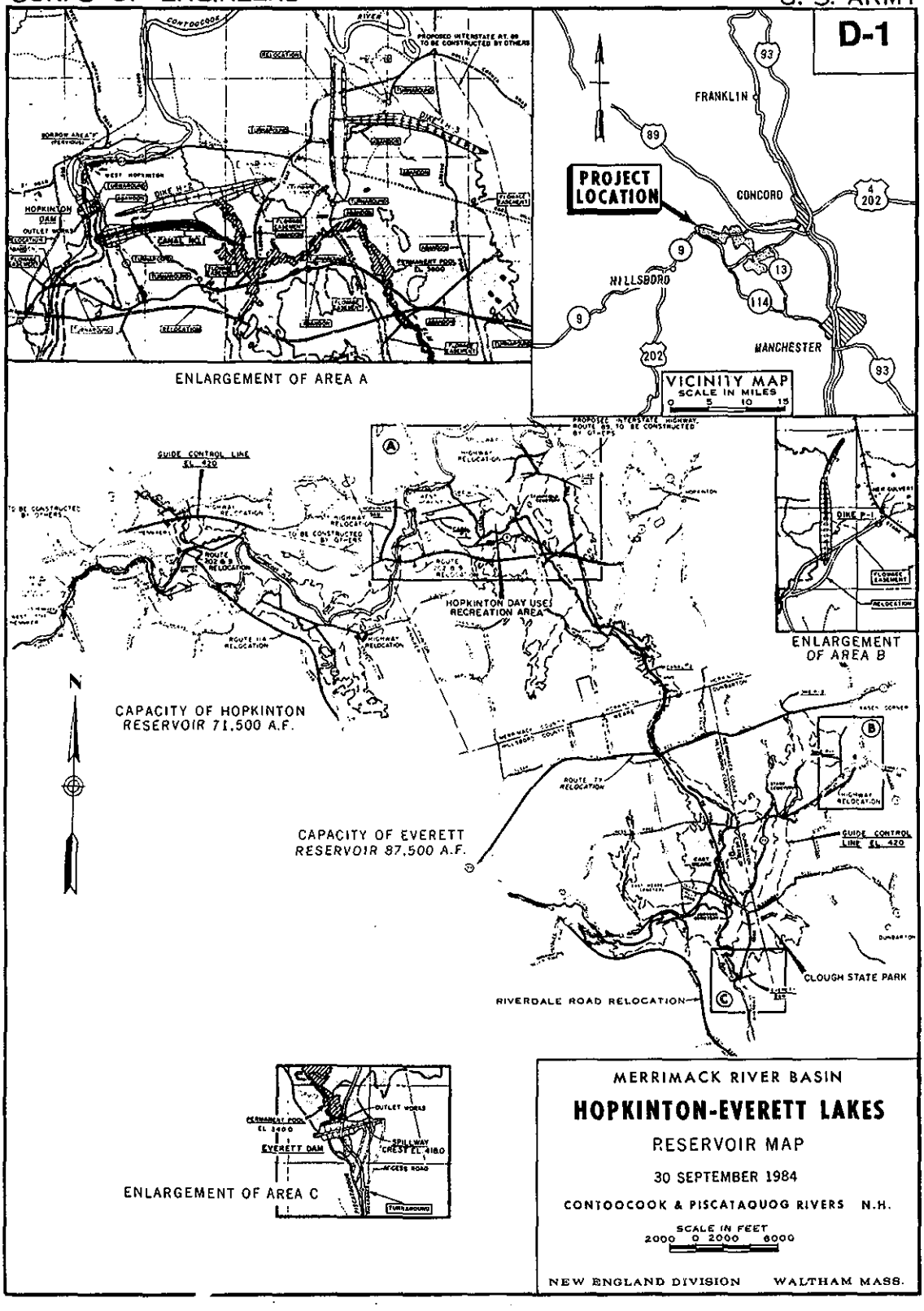

HOPKINTON-EVERETT LAKES PROJECT LANDS

The Federal government owns about 7,910 acres of land at Hopkinton-Everett Lakes. A large portion of the project lands, about 79 percent (6,239 acres), is licensed to the New Hampshire, Department of Resources and Economic Development (DRED). The license was renewed in 1989 for a period of 25 years. The license also includes areas at Blackwater Dam and Franklin Falls. An additional 50 acres is leased by DRED for Clough State Park. This is a 5 year lease and expires in 1994. Table D-2 presents information on Corps land acquisition and outgrants.

The Corps has a cooperative agreement with the Hopkinton-Everett Lake Dog Club Association allowing use of about 340 acres of project lands in an area known as Sharp's farm for club activities. The Corps also has a cooperative agreement with the Areo Guidance Society for radio airplane operation.

Table D-2. Hopkinton and Everett Lakes Land Acquisition and Outgrants

Federal Project Lands:	Hopkinton	Everett	Total
Acquisition in Fee (acres)			7,910
Easement (acres)			2,031
Outgrants:(1)			
DRED, Division of Forests and Lands (acres)		6,239	
DRED, Division of Parks and Recreation (acres)		50	
Agricultural (acres)		268	
New England College (acres)		15	
Town of Henniker (acres)		2	
Others		5	

(1) Does not include outgrants for rights of way.

HOPKINTON-EVERETT LAKES RECREATION

Activities - Recreational Activities at the project include:

Water Based
boating (1)
fishing
swimming

Land Based
ball playing
cross-country skiing
field dog training
hiking
horse riding
hunting
mountain bike riding
off-road vehicle riding
picnicking
radio airplane operation
snow mobiling
trapping

(1) No gas motors allowed on Everett Lake.

Facilities - Facilities at the project include:

Clough State Park on Everett Lake -	beach picnic areas picnic shelters one restroom center drinking water boat launch ramp (at park) parking area
Elm Brook Pool Day Use Area -	beach two restroom centers drinking water boat launch ramp (at Routes 9 and 202) parking area

The Hopkinton-Everett off-road vehicle use area is located near Everett Lake. The trail system is about 20 miles and includes a parking area.

There is a field dog trial and training area near Elm Brook Pool in an area known as Sharp's Farm.

New England College leases land for an athletic field and basketball summer camp.

There is a designated radio airplane operation area adjacent to Hopkinton Dike 2.

Management Activities - Clough State Park is managed by DRED, Division of Parks and Recreation. An entrance fee is charged and collected revenues used to run the park.

The Elm Brook Pool day use area is managed by the Corps. Rangers conduct a number of interpretive nature programs during the summer recreational season.

The field dog training and trial area is maintained by the Hopkinton-Everett Lake Dog Club Association. Management activities are funded by the Dog Club and most labor is on a volunteer basis. The improvement of this area for dog training has also resulted in improved wildlife habitat.

The off-road vehicle trail area is managed and maintained by DRED, Trails Bureau with the assistance of volunteers and project "Second Start" students. The trail system was designated by the Corps in May 1992, based on a management plan prepared by DRED (April 1992). Historically, illegal use of off-road vehicles has been a major problem in the project area. Uncontrolled use of off-road vehicles caused erosion and destruction of land. Under the management plan destruction of the environment will be reduced.

HOPKINTON-EVERETT FOREST RESOURCES

Forest Cover - The forest cover is mixed hardwood and softwood consisting of white pine and hemlock, associated hardwoods include red oak and red maple.

Management Activities - The project lands are managed by DRED and activities include:

- o forest inventory work
- o timber sales
- o timber stand improvement including planting, thinning, pruning, and weeding
- o road maintenance

- o construction of two river access points for canoes
- o boundary line maintenance involving marking and addressing trespasses onto Federal land
- o trash removal
- o law enforcement

The average annual timber cut at the project is about 100,000 board-feet. (Telecom, B. Blumeris, USACOE and B. MacGregor, New Hampshire Lease Manager, 7/9/1992) Revenues from timber sales at the project, along with timber sale revenues from Blackwater and Franklin Falls Dams are used to fund land management activities at these projects.

Timber sales at the project are coordinated with other New Hampshire Natural Resource Agencies to provide for improved wildlife habitat and protection of ecologically sensitive areas.

The Corps and DRED in a cooperative effort arranged to have the 386th Combat Engineering Battalion, Army Reserves, repair two miles of old Route 77 between the off-road vehicle use area parking lot and Clough State Park.

HOPKINTON-EVERETT LAKES FISHERIES

Description - The several ponds and lakes in the project area provide warm water fish habitat. Fish reported in the project area (USACOE and DRED, 1981) include:

brown bullhead
chain pickerel
bluegill
pumpkinseed
smallmouth bass
white sucker
white perch

Management Activities - Annually, several bass fishing tournaments are held at the project.

HOPKINTON-EVERETT LAKES WILDLIFE

Description - The project area provides forest, open field, marsh, and open water wildlife habitats. The Fish and Wildlife Management Plan contains a partial list of mammals and birds (DRED and USACOE, 1981) in the area. These are:

American black bear
beaver
big brown bat
common shrew
deer mouse
eastern chipmunk
eastern skunk
field mouse
fisher
gray squirrel
hairy-tailed mole
little brown bat
mink
moose
muskrat
porcupine
raccoon
red fox
red squirrel
river otter
southern bog lemming
southern flying squirrel
star-nosed mole
white-footed mouse
white-tailed deer
woodchuck

American widgeon
American woodcock
bald eagle
black duck
belted kingfisher
blue-winged teal
blue jay
broad-winged hawk
bufflehead
canvasback
cedar waxwing
common crow
common merganser
common snipe
Canada goose
downy woodpecker
red-breasted merganser
goldeneye
goshawk
great blue heron
green-winged teal

lesser scaup
kestrel
killdeer
mallard
marsh hawk
morning dove
peregrine falcon
red-tailed hawk
robin
saw-whet owl
snow goose
ring-necked pheasant
ruffed grouse
yellow-shafted flicker
yellow-bellied sapsucker
hairy woodpecker
horned lark
black-capped chickadee
white-breasted nuthatch
wood duck

Management Activities - Several groups are involved in wildlife management activities on project lands. The New Hampshire Fish and Game Department stock pheasant for hunting and issue trapping permits and monitor the trapping harvest. They also released wild turkey in an effort to reintroduce this game bird to it's historical range. Volunteer groups and the Corps install wood duck boxes and bird boxes. DRED's forest management activities for timber production have opened up project lands to provide additional food cover and habitat diversity. DRED in cooperation with other state agencies carried out a prescribed burn on an old field to rejuvenate herbaceous forage. Also work has been done to release apple trees from encroaching growth.

There are several waterfowl management areas within the project including the East Weare and the Stark Brook waterfowl refuge areas; and the River Road, the Stumpfield, and the Elm Brook water fowl management areas. Home of one of the seven known great blue heron rockeries is adjacent to the Stumpfield water fowl management area.

HOPKINTON-EVERETT LAKES WETLANDS

Description - There are wetlands on project lands. Wetlands are located on forest inventory maps developed by DRED for their forest management program. The number of acres of wetlands has not been calculated.

Management Activities - Wetlands management activities at the projects involve primarily protection and conservation efforts. Wetlands at the projects are protected under the Section 404 and 401 of the Clean Water Act. Although Corps actions at the projects are not required to obtain a permit, the Corps complies with the substantiative requirements of these laws. State actions are required to follow the permitting process.

HOPKINTON-EVERETT LAKES ARCHAEOLOGICAL RESOURCES

Description - Archaeological resources reconnaissance survey of the project lands has been conducted and a final report will be available in 1993.

Management Activities - These resources are protected under Section 110 of the National Historic Preservation Act of 1966, as amended. This act states that Federal agencies should establish a program to locate and inventory properties and to exercise caution to ensure that any property which might qualify for the national Register of Historic Places not be inadvertently transferred, sold, demolished, substantially altered or allowed to deteriorate significantly.

HOPKINTON-EVERETT LAKES AGRICULTURAL RESOURCES

Description - There are 268 acres in agricultural outgrants.

Management Activities - Corps administers agricultural outgrants.

HOPKINTON-EVERETT LAKES REFERENCES

US Army Corps of Engineers, New England Division, Class II Water Quality Projects with Permanent Pools, Water Quality Evaluation Update, 1989.

US Army Corps of Engineers, New England Division, Hopkinton Lake, Flood Emergency Plan, 1985.

US Army Corps of Engineers, New England Division, Hopkinton Lake, Drought Contingency Storage Plans, 1984.

US Army Corps of Engineers, New England Division, Everett Lake, Drought Contingency Storage Plans, 1984.

US Army Corps of Engineers, New England Division, Hopkinton Lake, Dam Break Flood Analysis, 1983.

US Army Corps of Engineers, New England Division, Everett Lake, Dam Break Flood Analysis, 1983.

State of New Hampshire and Department of Resources and Economic Development, Division of Parks and Recreation, Bureau of Off Highway Vehicles Management Plan for Hopkinton-Everett Reservoir, 1992

State of New Hampshire and Department of Resources and Economic Development, Division of Forest and Lakes and US Army Corps of Engineers, New England Division, Everett and Hopkinton Lakes, Forest Management Plan, Appendix B and Fish and Wildlife Management Plan, Appendix D, 1981.

US Army Corps of Engineers, New England Division, Hopkinton and Everett Lakes, Master Plan for Reservoir Development, 1978.

US Army Corps of Engineers, New England Division, Hopkinton and Everett Lakes, Environmental Assessment of Operation and Maintenance, 1976.

US Army Corps of Engineers, New England Division, Everett Lake, Operation and Maintenance Manual, 1973.

US Army Corps of Engineers, New England Division, Hopkinton Lake, Operation and Maintenance Manual, 1973.

US Army Corps of Engineers, New England Division, Merrimack River Basin, New Hampshire and Mass, Master Water Control Manual, 1977.

APPENDIX E

OTTER BROOK LAKE

OTTER BROOK LAKE

PROJECT DESCRIPTION

Otter Brook Lake flood control project is located in the community of Keene, and Roxbury, New Hampshire. The project consists of a flood control dam on Otter Brook, associated facilities, and project lands. Project information is presented in Table E-1. A map of the project is included at Figure E-1.

The dam has the capacity to store 18,320 acre-feet of water during flood control operations. However, most of the time a small "conservation pool" (870 acre-feet) is maintained at the project.

Natural features at the project include forests, streams, wetlands and open water.

Table E-1. Information on Otter Brook Lake Flood Control Project

River Basin:	Connecticut
River Drainage:	Otter Brook to Branch River to Ashuelot River to Connecticut River
Date of Completion:	April 1958
Authorized Purpose:	Flood Control
Drainage Area:	47.2 square miles

Reservoir Operating Level	Elevation (ft, ngvd)	Surface Area (acres)	Capacity (acre-feet)
Invert	683	---	---
Conservation Pool	703	76	870
Spillway Crest	781	374	18,320

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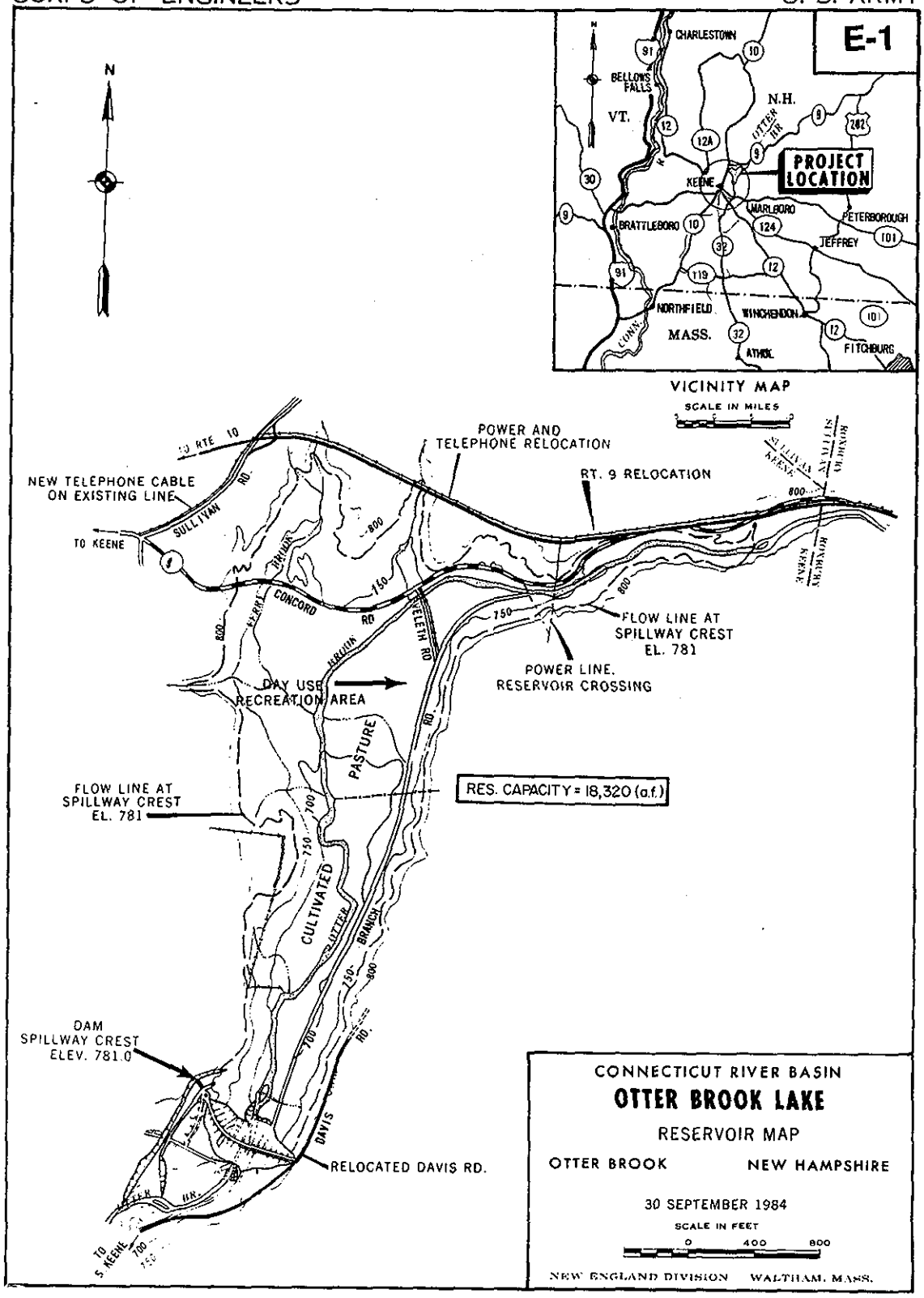

OTTER BROOK LAKE PROJECT LANDS

The Federal government owns 461 acres at Otter Brook Lake. Lands are managed by the Corps of Engineers. Table E-2 presents information on Corps land acquisition and outgrants.

Table E-2. Otter Brook Lake Land Acquisition and Outgrants

Project Lands:	
Acquisition in Fee (acres)	461
Easement (acres)	124
Outgrants (1):	
no leases or licences to use project lands	

(1) Does not include outgrants for rights of way.

OTTER BROOK LAKE RECREATION

Activities - Recreational Activities at the project include:

Water Based
boating (no gas engines)
fishing
swimming

Land Based
ball playing
cross-country skiing
hiking
horse riding
horse shoe playing
hunting
mountain bike riding
picnicking
snow mobiling
trapping

Facilities - There is a large day use recreational area located at the upstream end of the lake.

The day use recreation area includes:

90 picnic tables
two picnic shelters for large groups
55 fireplaces
swimming beach (800-foot)
boat ramp (at lake)
two restrooms/changing house
drinking water fountains
telephones
horseshoe pits
several parking lots

There is an overlook area and parking area at the dam, marked snowmobile trails on the project lands, and a ballfield.

Management Activities - The Corps operates and maintains the recreational facilities at the project. During the recreational season the project is fully staffed with rangers to assist the public and control crowds. A number of interpretive nature programs are offered to groups such as the Cub Scouts, Girls Scouts, and Junior Rangers. There is a 26 mile annual horseback ride at the project. Also downstream canoe trips in the spring are benefited by scheduled water releases from the dam.

OTTER BROOK LAKE FOREST RESOURCES

Forest Cover - Forest cover types are mixed softwoods and hardwoods. The softwoods include white pine and hemlock. The hardwoods include northern red oak, sugar maple, beech, yellow birch, basswood, white ash, gray birch, red maple, and aspen. (USACOE 1982)

Management Activities - The project lands are managed by the Corps; activities include limited timber sales primarily for thinning and on-going tree planting program at recreation areas.

OTTER BROOK LAKE FISHERIES

Description - The conservation pool maintained behind the dam throughout the year provides for warm water fisheries habitat. Otter Brook above and below the dam also provides for cold water fisheries habitat. Fish reported at the project (USASCOE 1982, USASCOE 1992) include:

black-nosed dace
brown bullhead
chain pickerel
common shiner
fallfish
golden shiner
largemouth bass
long-nosed dace
pumpkinseed
rock bass
white sucker
yellow perch

Management Program - The New Hampshire Fish and Game stock trout two or three times a year above and below the dam.

OTTER BROOK LAKE WILDLIFE

Description - The project area provides primarily forested habitat and open water wildlife habitat. The Fish and Wildlife Management Plan for the project (USACOE, 1982) contains a partial list of species in the area. These are:

eastern chipmunk
eastern grey squirrel
fisher
gray fox
New England cottontail
raccoon
red fox
red squirrel
snowshoe hare
white-tailed deer

black-capped chickadee
broad-winged hawk
eastern bluebird
kestrel
red-tailed hawk
ruffed grouse
tree swallow
wild turkey
woodcock

Management Activities - The wildlife management activities include installation and keeping records of use for bird boxes and duck boxes. Apple tree pruning for deer yards. Maintenance of open field habitat.

OTTER BROOK LAKE WETLANDS

Description - About 25 acres of vegetated wetland habitat is present in the project area. These include about 20 acres of forested or shrub/scrub wetland and 5 acres of emergent wetland. (USACOE, 1992)

Management Activities - Wetlands management activities at the projects involve primarily protection and conservation efforts. Wetlands at the projects are protected under the Section 404 and 401 of the Clean Water Act. Although Corps actions at the projects are not required to obtain a permit, the Corps complies with the substantiative requirements of these laws. State actions are required to follow the permitting process.

OTTER BROOK LAKE ARCHAEOLOGICAL RESOURCES

Description - The Corps is conducting an archaeological reconnaissance survey of the project. This final report will be completed in 1993.

Management Activities - These resources are protected under Section 110 of the National Historic Preservation Act of 1966, as amended. This act states that Federal agencies should establish a program to locate and inventory properties and to exercise caution to ensure that any property which might qualify for the national Register of Historic Places not be inadvertently transferred, sold, demolished, substantially altered or allowed to deteriorate significantly.

OTTER BROOK LAKE AGRICULTURAL RESOURCES

Description - There are no agricultural outgrants at the project.

Management Activities - not applicable

OTTER BROOK LAKE REFERENCES

US Army Corps of Engineers, New England Division, Section 22, Massachusetts Water Resources Authority, Connecticut River Flow Augmentation Study, Draft Report, 1992

US Army Corps of Engineers, New England Division, Otter Brook Lake, Flood Emergency Plan, 1986.

US Army Corps of Engineers, New England Division, Otter Brook Lake, Dam Break Flood Analysis, 1985.

US Army Corps of Engineers, New England Division, Otter Brook Lake, Drought Contingency Storage Plans, 1984.

US Army Corps of Engineers, New England Division, Otter Brook Lake, Water Quality Evaluation, 1983.

Otter Brook Project, General Limnological Survey, prepared by Peter Trinchero. 1982

US Army Corps of Engineers, New England Division, Otter Brook Lake Forest Management Plan, Appendix B and Fish and Wildlife Management Plan, Appendix D, 1982.

US Army Corps of Engineers, New England Division, Otter Brook Lake, Environmental Assessment of Operation and Maintenance, 1973.

US Army Corps of Engineers, New England Division, Otter Brook Lake, Operation and Maintenance Manual, 1973.

US Army Corps of Engineers, New England Division, Otter Brook Lake, Master Plan for Reservoir Development, 1967.

US Army Corps of Engineers, New England Division, Connecticut River Basin, New Hampshire and Mass, Master Water Control Manual, 1983.

SURRY MOUNTAIN LAKE

APPENDIX F

SURRY MOUNTAIN LAKE

PROJECT DESCRIPTION

Surry Mountain Lake flood control project is located in the community of Surry, New Hampshire. The project consist of a large flood control dam on the Ashuelot River, associated facilities and project lands. Project information is presented in Table F-1. A map of the project is included as Figure F-1.

The dam has the capacity to store 31,680 acre-feet of water during flood control operations. However, most of the time a small "conservation" pool (1,320 acre-feet) of water is maintained behind the dam.

Natural features of the project lands include forests, open land, and wetlands.

Table F-1. Information on Surry Mountain Lake Flood Control Project

River Basin:	Connecticut
River Drainage	Ashuelot River to Connecticut River
Date of Completion:	June 1942
Authorized Purpose:	Flood Control
Drainage Area:	100 square miles

Reservoir Operating Level	Elevation (ft, ngvd)	Surface Area (acres)	Capacity (acre-feet)
Invert	485	---	---
Conservation Pool	500	260	1,320
Spillway Crest	550	970	33,000

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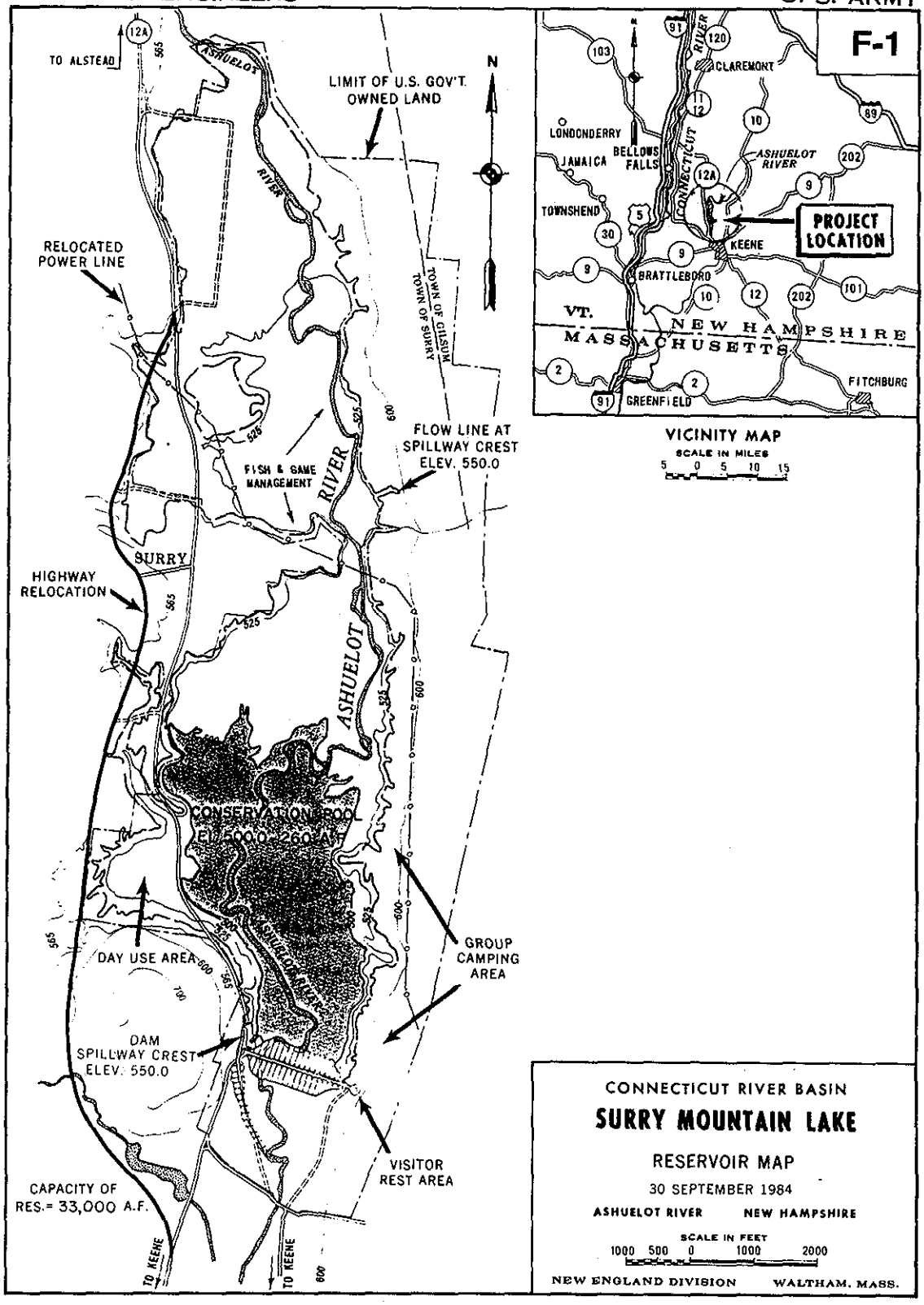

SURRY MOUNTAIN LAKE PROJECT LANDS

The Federal government owns 1,688 acres at Surry Mountain Lake. Project lands are managed by the Corps of Engineers. Table F-2 presents information on Corps land acquisition and outgrants.

Table F-2. Surry Mountain Lake Land Acquisition and Outgrants

Project Lands:	
Acquisition in Fee (acres)	1,688
Easement (acres)	86
Outgrants(1):	
Campground (acres)	5
City of Keene, Pistol Range	3
Surry Mountain Riders, 4H	5

(1) Does not include outgrants for rights of way.

SURRY MOUNTAIN LAKE RECREATION

Activities - Recreational Activities at the project include:

Water Based
boating (gas engines to 10 hp)
fishing
swimming

Land Based
ball playing
cross-country skiing
hiking
horse riding
horse shoe playing
hunting
mountain bike riding
picnicking
snow mobiling
trapping

Facilities - Facilities at Surry Mountain Lake include a large day use recreational area located on the west side of the lake, a three quarter mile long nature trail near the recreation area, an overlook area at the dam, and marked snowmobile trails on the project lands.

The day use recreation area includes:

80 picnic tables
one picnic shelters for large groups
50 fireplaces
swimming beach (800-foot)
boat ramp (at lake)
two restrooms/changing house
drinking water fountains
telephones
horseshoe pits
several parking lots

Management Activities - The Corps operates and maintains the recreational facilities at the project. During the recreational season the project is fully staffed with rangers to assist the public and control crowds. A number of interpretive nature programs are offered to groups such as the Cub Scouts, Girls Scouts, and Junior Rangers. An annual triathalon is held at the project. Also downstream canoe trips in the spring are benefited by scheduled water releases from the dam.

SURRY MOUNTAIN LAKE FOREST RESOURCES

Forest Cover - The forest cover consists of mixed softwoods and hardwoods. The soft woods include white pine, hemlock, and red pine; the hardwoods include northern red oak, basswood, white ash, black ash, American elm, red maple, gray birch, and aspen. (USACOE, 1982)

Management Activities - The project lands are managed by the Corps and activities include limited timber sales primarily for pruning and on-going tree planting program at recreation areas.

SURRY MOUNTAIN LAKE FISHERIES

Description - The conservation pool maintained behind the dam throughout the year is classified as a warm water fishery. The Ashuelot River provides trout habitat. Fish reported at the project (USACOE, 1982) include:

American eel
black-nosed dace
brown bullhead
brook trout
brown trout
burbot
chain pickerel
common sucker
creek chub
fallfish
golden shiner
johnny dater
long-nosed dace
largemouth bass
pumpkinseed
redfin pickerel
smallmouth bass
white sucker
yellow perch

Management Program - The New Hampshire Fish and Game Department stock trout upstream of the on the Ashuelot River.

SURRY MOUNTAIN LAKE WILDLIFE

Description - The project area provides forested, old fields, wetlands and open water wildlife habitat. The Fish and Wildlife Management Plan for the project (USACOE, 1982) contains a partial list of species in the area. These are:

beaver
eastern chipmunk
eastern grey squirrel
fisher
gray fox
muskrat
mink
New England cottontail
otter
raccoon
red fox
gray fox
red squirrel
snowshoe hare
white-tailed deer

black-capped chickadee
black duck
broad-winged hawk
Canada goose
eastern bluebird
green heron
great blue heron
herring gull
kestrel
killdeer
osprey
red-tailed hawk
ruffed grouse
tree swallow
wild turkey
wood duck
woodcock

Also the dwarf wedge mussel is present in the Ashuelot River downstream of the dam. This mollusk is listed on the Federal and state endangered species list.

Management Activities - The wildlife management activities include maintenance of New England cottontail habitat (early brush successional stage) and prescribed burns to maintain field habitat. Also small annual hay sales are conducted to help keep fields open.

Game birds are stocked annually at the project by the New Hampshire Fish and Game Department.

The Corps is working with the New Hampshire Fish and Game and the U.S. Fish and Wildlife Service to adjust flow releases from the dam to avoid impacts to the dwarf wedge mussel.

SURRY MOUNTAIN LAKE WETLANDS

Description - There are wetlands located at the north end of Surry Mountain Lake. The number of acres of wetlands has not been calculated.

Management Program - Wetlands management activities at the projects involve primarily protection and conservation efforts. Wetlands at the projects are protected under the Section 404 and 401 of the Clean Water Act. Although Corps actions at the projects are not required to obtain a permit, the Corps complies with the substantiative requirements of these laws. State actions are required to follow the permitting process.

SURRY MOUNTAIN LAKE ARCHAEOLOGICAL RESOURCES

Description - The archaeological reconnaissance survey of the project was conducted in the summer of 1979. (USACOE, 1979) This study reports many historic sites. No prehistoric sites were located.

Management Activities - These resources are protected under Section 110 of the National Historic Preservation Act of 1966, as amended. This act states that Federal agencies should establish a program to locate and inventory properties and to exercise caution to ensure that any property which might qualify for the national Register of Historic Places not be inadvertently transferred, sold, demolished, substantially altered or allowed to deteriorate significantly.

SURRY MOUNTAIN LAKE AGRICULTURAL RESOURCES

Description - There are no agricultural outgrants at the project.

Management Activities - not applicable

SURRY MOUNTAIN LAKE

US Army Corps of Engineers, New England Division, Surry Mountain Lake, Drought Contingency Storage Plans, 1986.

US Army Corps of Engineers, New England Division, Surry Mountain Lake, Dam Break Flood Analysis, 1983.

US Army Corps of Engineers, New England Division, Surry Mountain Lake, Fish and Wildlife Management Plan, 1982.

US Army Corps of Engineers, New England Division, Surry Mountain Lake, Project Plan for Recreation Resources Development, 1980.

US Army Corps of Engineers, New England Division, A Cultural Resource Reconnaissance for the Operation and Maintenance of Surry Mountain Lake, 1979.

US Army Corps of Engineers, New England Division, Surry Mountain Lake, Environmental Assessment of Operation and Maintenance, 1973.

US Army Corps of Engineers, New England Division, Surry Mountain Lake, Operation and Maintenance Manual, 1972.

US Army Corps of Engineers, New England Division, Surry Mountain Lake, Master Plan for Reservoir Development, 1966.

US Army Corps of Engineers, New England Division, Connecticut River Basin, New Hampshire and Mass, Master Water Control Manual, 1983.

RECREATION AND NATURAL RESOURCE PLANNING STUDIES

APPENDIX G

The planning and administration of the six Corps' flood control projects and associated lands in New Hampshire is the responsibility of the Corps, New England Division. The primary function of these projects is achievement of reduction in downstream flows by holding back storm runoff during high stream flow conditions; thereby, reducing downstream flooding and flood damages. However, besides flood control, the projects and associated Federal lands provide opportunities for recreation and natural resources management.

New Hampshire manages a major portion of these project lands under agreements with the Corps. However, the Corps still maintains stewardship of the land, oversees the operation and management of lands, assists in cooperative efforts with the State of New Hampshire and approves and plans for the utilization of all natural and man made resources at the projects.

The objectives of the Corps program as stated in U.S. Army Corps of Engineers Regulation, ER 1130-2-400, June 1986 are:

- To manage natural resources on Corps administered land and water to insure their continued availability.

- To provide outdoor recreation opportunities on Corps administered land and water on a sustained basis.

- To provide a safe and healthful environment for project visitors.

To this end, the Corps has prepared several types of management plans and assessments in cooperation with the New Hampshire agencies.

These include the original project master plans written in the 1960's and 1970's. These conceptual plans were prepared to guide the use and development of the resources at the project. The fish and wildlife and forest management plans for the projects, prepared in the 1980's, are considered appendices to these original master plans. (Table G-1)

Currently, the Corps is updating documentation related to recreation and natural resource planning and management at the projects. One of the documents scheduled for preparation is the Operational Management Plan or OMP. The OMP is a management action document describing in detail how resource objectives and concepts prescribed in the master plan will be implemented and achieved. The OMPs for Franklin Falls and Otter Brook are scheduled for 1993 and the OMP for Surry Mountain is scheduled for 1994.

Besides these resource planning reports, drought contingency plans and environmental assessment of operations reports were written for the projects. The drought contingency plans assess how water stored in the reservoirs might be used by local communities during a water supply shortage. The environmental assessment of operations reports provides an evaluation of the impacts due to routine operation and maintenance of the projects. (Table G-2)

The Corps is also conducting archaeological reconnaissance surveys at the projects and has plans for endangered species surveys at the projects in the next several years.

Table G-1. Master Plans and Operation Management Plans for the Corps' Flood Control Projects in New Hampshire

Projects	Project Master Plan	Fish and Wildlife and Forest Management Plans	Operations Management Plan
Blackwater Dam	1972	1981	tbd (2)
Edward MacDowell Lake	1979	1981	tbd
Franklin Falls Dam	1966	1982	1993
Hopkinton-Everett Lakes	1978	1981	tbd
Otter Brook Lake	1967	1982	1993
Surry Mountain Lake	1966 (1)	1982	1994

(1) Also "Surry Mountain Project Plan for Recreational Development, 1981"
(2) tbd = to be determined

Table G-2. Other Plans or Assessments Prepared for the Corps' Flood Control Projects in New Hampshire

Projects	Drought Contingency Plan	Drought Contingency Plan Update	Environmental Review Guide for Operations	Environmental Assessment of Operations
Blackwater Dam	1985	ns (1)	tbd	1973
Edward MacDowell Lake	1984	tbd (2)	tbd	1976
Franklin Falls Dam	1987	ns	tbd	1973
Hopkinton-Everett Lakes	1984	tbd	1992	1976
Otter Brook Lake	1984	1992	1992	1973
Surry Mountain Lake	1986	tbd	tbd	1973

(1) ns = not scheduled
(2) tbd = to be determined